SECOND EDITION

JUST AND LASTING CHANGE

When Communities Own Their Futures

DANIEL C. TAYLOR AND
CARL E. TAYLOR

VISIT…

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To Mary:
Who taught us to accent the positive

Which led to the first principle of social change:
Build from Success

Sustainable human development is development that not only generates economic growth but distributes its benefits equitably; that regenerates the environment rather than destroying it; that empowers people rather than marginalizing them. It gives priority to the poor, enlarging their choices and opportunities, and provides for their participation in decisions affecting them. It is development that is pro-poor, pro-nature, pro-jobs, pro-democracy, pro-women, and pro-children.

James Gustav Speth, former administrator, United Nations Development Program

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Foreword

The SEED-SCALE concepts presented in this book were first published in Community-Based Sustainable Human Development *(New York: UNICEF, 1995). Jim Grant wrote the foreword to that monograph—the last words he wrote before his death. In memory of Jim (and his father, John, whose seminal work is mentioned in chapter 7), we reprint a portion of Jim's essay.*

As the World Bank's *World Development Report* for 1993 stated, there has been more improvement in child survival in the past fifty years than in all previous human history. A major part of that improvement has resulted from the specific interventions promoted by what UNICEF has referred to as the Child Survival Revolution. . . .

A major concern is sustainability of these achievements. . . . Mobilization should start with national leaders, but its sustainability depends on continuing community participation. Demand for services must be stimulated and maintained at the community level. Science-based interventions should be simplified so as to be applied in the home either by family members or by easy access to peripheral health workers. The most important responsibility of health and other services is to promote the capacity of families and communities to solve their own problems with self-reliance.

Area-based programs have tended to be successful in local areas, but there have been problems of their not readily "going to scale." There are, however, examples of successful extension. . . . Drs. Daniel Taylor and Carl Taylor have made a worthy effort in drawing important lessons from such examples, and they have proposed a set of measures that could guide future efforts. . . . Their process places special emphasis on equity, a long-standing UNICEF goal of reaching the unreached; adaptation and innovation under diverse local conditions; and capacity building through collaboration between communities, government officials, and experts.

I want to thank Drs. Daniel Taylor and Carl Taylor for the important ideas that they have synthesized here in concise and practical ways.

James P. Grant
executive director, UNICEF, 1980–1995

Glossary
The SEED-SCALE Process

This book describes an approach to social change known as SEED-SCALE. This approach allows communities to analyze their local conditions in relation to global dynamics, take appropriate actions based on their priorities and resources, and then assess how succeeding actions will grow continued progress toward increasingly *just and lasting change*. We offer simple procedures to evolve solutions of great social complexity, but the various acronyms, principles, tasks, and criteria that constitute SEED-SCALE can be confusing. Therefore, definitions and key elements are laid out here for easy reference.

Community: A group that has something in common and has the potential to act together.

Dimensions of SCALE (growth in improvement and participation):

- SCALE One = Stimulating Community Awareness, Learning, and Energy (SCALE One describes the expanding scope of activities)
- SCALE Squared = Self-help Centers for Action Learning and Experimentation (SCALE Squared describes improvements to the quality of community life)
- SCALE Cubed = Synthesis of Collaboration, Adaptive Learning, and Extension (SCALE Cubed describes the enabling environment of social change)

Five criteria for self-evaluation:

1. Inclusiveness of gender, ethnicity, economic levels, and religion
2. Sustainability in financing, the environment, and cultural values
3. Holism of action across sectors of development
4. Interdependence between communities
5. Iteration, with actions done better each time

Four principles:

1. Build from success (avoid actions based on needs)
2. Form a three-way partnership between the bottom-up, top-down, and outside-in

3. Make decisions based on evidence (not on power, collective opinions, or donor wishes)
4. Focus on changing behaviors (rather than providing services)

SEED-SCALE:

- SEED = Self-Evaluation for Effective Decision-making
- SCALE = Systems for Communities to Adapt Learning and Expand

Seven tasks:

1. Organize a local coordinating committee
2. Gather evidence about a community (use various ways to map the community)
3. Identify successes already occurring
4. Learn about the relevant experiences of others
5. Make a workplan, with doable tasks for all partners
6. Hold partners accountable for their actions in the workplan
7. Make midcourse corrections to strengthen the four principles

Socio-econo-biosphere: The global network of human relationships interacting with the financial interconnections within the life systems of the planet, which include growing a world-encircling understanding of these.

Just and Lasting Change

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Introduction

A more just and lasting future is possible for almost everybody on Earth. New money is not needed, and government policies do not need to change, although both of those can help. The evidence presented in this book is that people—through learning to work with what they have—can redirect their lives toward more just and lasting futures.

Against this positive opportunity there also exists the negative reality of rising inequity, climatic chaos, seemingly random victimization, and depletion of all resources—except one. Change is upon us, whatever we do, everywhere—to that, we need to respond. The one resource every person has, which grows more bountiful each day, is ourselves and, more specifically, our human energies of hope, work, creativity, collaboration, and perseverance.

Today's opportunity is that, while change can be destructive, it can also foster progress, and this occurs through learning how to apply our human energies. For more beneficial change, communities need not wait for money, or for their governments to change policies, or even for inspirational leaders. Any group can act now, with what they have. To turn our lives toward greater effectiveness, we can learn to work with (or around) the resources and policies that are our realities. The process always begins locally—then this local change can scale up.

Improving life at the single, local community–level transforms that community. This is the beginning. A greater scope, in both size and the quality of life, can follow. It is a growth process, like a plant growing from seeds in its local soil. Improving our place then draws other communities to this process. A rising quality of life is what each community wants, and

this can grow, as communities inform other communities. Scale is not just a project getting bigger. Driving the "getting bigger" are peoples' aspirations for an improving quality of life.

This book presents such a process. Using it, any community can take hold of the change that is happening to it. The community can transform what could be a victimizing process of life in today's world into change that it evolves and, increasingly, owns. This volume is about defining the direction of that change. Our emphasis is on how to do it: communities acting toward their objectives, with that progress being "funded" by resources the community primarily already has. A community collaboratively acting toward its objectives, using what it has, differs from the conventional approach of change coming from money supplied by a government or donor, and then made to happen by people paid to work for program objectives mandated by the funding source.

The change that evolves is grounded in cooperation, not competition. In this, interactions among people turn from struggling over scarcity (of money, natural resources, limited opportunities) to using more effectively a resource that all in the world own in nearly equal measure: human energy. It is important to focus on this resource: our energies of labor, creativity, patience, persistence, and cooperation. The more each is used, the more effective it becomes, and, as the combination of all of them is used, what grows is a new society. A new society can also be called "civilization," and we have the opportunity in our world today to grow a more just and lasting civilization.

The energies of work priorities, daily labor, mental creativity, and cooperation (however one chooses to categorize the expressions of our lives) are not scarce resources, as are money, natural resources, or privilege, for which we have created our current civilization of competition. Economists argue (correctly) that society advances through growth, but the resources that economic growth promotes are scarce, their utilization encourages competition, and the result is creating a world of strife. While one sector is advancing, another segment is necessarily losing. What this book advocates is a world of more widespread growth, using a resource base that strengthens the societal fabric the more it is used.

So there are two differences in the approach introduced in this book from the traditional ones. First, the resource base differs: something everyone possesses versus things that are scarce. Second, the process differs:

from a society grounded in competition to one maintained through cooperation. But while stark differences exist, they are not either/or choices, for our aspirations as people drive both processes—covetous aspirations lie behind the scarce-resource, competition-based approach.

We hasten to stress, again, that while there are two different approaches, what is being advocated is not an either/or choice. Human energy is emphasized, but money is also being used. Cooperation is promoted, yet the fact that we live in a world of competition is acknowledged and utilized. The means of growing a just and lasting future is to join the two processes by holding on to the aspirations of people and of each community, grounded in their local values and resources, and to bring outside-in support to this base.

The process evolves from *seeds* resident where people live; from these, the quality of life can grow to *scale* everywhere. The good news is that every community has positive seeds and, thus, has potential. If a community did not experience successes, it would not have survived in its place and time. Thus this potential beginning point exists wherever there is community life, and it holds out hope of a positive advancement for all.

It is possible to reduce the gaps between those who have, those who want to have, and those who have given up. The process is not a cookbook (though the principles, tasks, and criteria may look at times like a formula); it is a way of analyzing and acting that focuses on the functions by which communities operate. Expertise grows by applying and then repeating these functions. We call the process *SEED-SCALE*.

How does it work? A community already is using resources its people have. The community then learns new, more-effective behaviors in their utilization. Social change becomes internalized. Getting community members to work from self-interest pays for social change by using not just human energy, but also the range of local resources. In this, each member has something to contribute. The whole community is receiving returns from a rising quality of life, rather than a more limited number of people getting money.

It is possible—and very effective—to start community change without much money. But some investment is needed to start: not money, but recognition of the success the community has already achieved. What the community already owns is then shared, which leads to the objective of continuing improvement. This is SEED. In taking that to SCALE, the core

transformation under way among the population is behavior change, which is driven by education. This means of learning of new behaviors generally involves 20% of the financial resources of what traditional social change would require if it was paid for by hiring professionals or offering incentives. When people are working because they believe in a change, they then "own" the objectives; that ownership draws in actions by others and tends to cause the community to contribute resources it otherwise hoards.

The conceptual framework advanced here comes from a subfield of complexity theory known as emergence. Communities are complex adaptive systems. What shapes their diversity into unity is the web that links their parts, a web of constantly changing interactions. Then, from time to time, through their interactions, new structures emerge from within, and new designs come out of the old. In SEED-SCALE, change is not caused by external inputs. It emerges, doing so by readjusting components and relationships inside a system. Before and after, the parts in a community may be identical—but relationships among the parts have changed, and a new community has emerged. The parts already there re-form, driven in their reshaping by principles (values) that are also inside the system.

Complex dynamics are altered through partners redirecting actions. In simple systems, an action may prompt change, such as spending money with the intent of improving health. But that is not the way our lives function; societies are not simple. Spending money on health services often does not improve health, because complex personal and societal dynamics can cause people to keep on getting sick, and introducing this funded service brings an incentive into the system—money—that reinforces continuation in a sick state, rather than fostering movement toward health. For social issues, we must turn to complexity theory.

SEED-SCALE, as a process for the emergence of a new society, is only a quarter-century old. But, for millennia, communities have grown into civilizations through their energies and resources. Some examples in this book discuss how communities have been using these concepts of internal growth for a long time. SEED-SCALE turns this to a predictable means to articulate those long-standing practices. Other cases presented here were fully initiated by SEED-SCALE, so they show how to use it. Applications across the last quarter century seem to show that SEED-SCALE embodies a universal process—retrospective and prescriptive—for site-specific life improvement.

Aspirations are central to this process. They are a feature of all people, and they can be applied either positively or negatively. Today, aspirations from 7.3 billion people are exerting tremendous pressure on a planet with nonexpanding physical resources. Yet even in this finite world of expanding populations and growing aspirations, this dynamic can be applied to focus on improving lives. This book does not engage in the parallel, important debate of where the limits to growth might be. Rather, it presents how growth can continue, by using aspirations and resources more sustainably. In a world of mostly diminishing resources, we, the world's people, with our many types of energies, are the expandable resource for our future.

Today most people live longer, and in greater material comfort, than did their grandparents. Children grow up with fewer physical and mental disabilities. The majority of older people enjoy unprecedented possibilities for care and security. Communications are enabling even the poor around the world to talk in a global discourse as they walk through daily life.[1] By twos, tens, and thousands, as communities and nations, people are acting. Progress often starts out small, but year by year, more and more people are seeing opportunities they can take a hand in shaping. The world may now have 7.3 billion people, and grow to 10 billion, but an important feature in this is that we are moving forward—in many ways.

Daily, people migrate across the landscape like rising and falling tides, seeking opportunity amid a sea of options that, admittedly, preferentially rewards the affluent. In addition, we live in a changing environment that threatens to cap our lives. But despite these dynamics, opportunity also exists for all. Movement gives each person and each community an opportunity to act. The question, therefore, is not *whether* there is opportunity, but *how* to use it.

Referring again to the subfield of emergence in complexity theory, the explanation for this reshaping is that communities change because of their principles. (We shall use the term "principles" in this book, but "values" can also be used, or "rules.") In complex systems, the answer to what directs change is in the means through which systems operate: principles. The whole is shaped and constantly reshaped from the principles that govern its internal parts. Change follows in radiating self-assembly, continuing to alter as new efforts build on those tried earlier. Attempted improvements learn from the ones that were tried before, each in accord

with circumstances prevailing in its own situation, always shaped specifically by what we refer to as the *four principles*.

SEED-SCALE provides a means to access collective well-being, using as its currency what people have, and sharing what we collectively can influence. Potential for all resides in the complex interconnectedness of the socio-econo-biosphere that we all live in. A complex system does not advance by taking *from* what exists, but rather by giving *to* it, so the whole works more efficiently—cooperation, not competition. From that evolves a system that is more effective for all.

At its core, this is a process of learning. And learning involves making mistakes, then building something better; it is not about starting all over again from scratch. To enlarge this collective system, those who lead it must relinquish control. The object is to grow toward an empowered people. In doing so, control is needed—not over resource streams, but over what drives the system: its principles. Through this process, change self-assembles via the system.

In these internal dynamics, the central concept is a feedback loop. A feedback loop means that an action circles around and prompts further, improved actions; this is not simple repetition, but a cycle of changing action. Resident "seeds" in communities that are improving their quality of life induce more individuals to join this feedback loop. For example, a rising quality of life attracts an increasing number of people who want that better life, and more people getting involved gather more opportunities for improving their quality of life. SEED-SCALE offers a start to this feedback loop process; it provides the *how*, and then it provides the means to *grow*.[2]

The Universal Currency of Social Change: Human Energies

- They contain resources everyone possesses
- The more they are used, the more they grow
- They grow by cooperation (not competition)
- They are passed from community to community through learning
- As energies aggregate, synergies emerge among them
- Thus more just and lasting change can mature within society

The Evolution of SEED-SCALE

SEED-SCALE has been evolving since 1992, following a request from the executive director of UNICEF, Jim Grant. Jim recognized that

unexplained processes were occurring in UNICEF's worldwide projects. Sometimes projects were very successful, and at other times less so. He had observed that it did not matter how much money UNICEF invested, or whether the best people were put on the team. Money and people both reliably caused small-level impacts, but what caused success at a large scale? Jim charged us to lead an international review of the "black box" in scale-level social change. Two task forces were created, with resultant reports.[3] Jim wrote the foreword to the first volume in the report series; a second volume followed that became the first edition of this book.[4]

Beginning in 1995, we initiated projects in a sequence of countries (Peru, India, China, Afghanistan, the United States, and Haiti); these served as prospective case studies to test the SEED-SCALE approach. Using this method, social change typically moves forward with double the impact, in half the time, for one-fifth the cost, compared with traditional methods. These are approximations, but their impact represents extraordinary outcomes, and our discussion of their causal dynamics is found in a parallel volume.[5] The current book, a second edition of our 2002 version of *Just and Lasting Change*, gathers lessons from all of these publications plus more-current fieldwork.[6] Broadly, the process of driving social change by using human energies is known as *empowerment*.

Over the decades, as an understanding of SEED-SCALE has grown, the question has often been asked about its terminology. As individuals and communities, we function in a complex world, described in a new word introduced by SEED-SCALE: *socio-econo-biosphere*, which is the diversity of people connected to world economics and to the life-matrix of the planet. Indeed, as this present book notes, the word might even more accurately be *socio-econo-info-biosphere*, since the global net of information now also defines our connectedness. Existing words, such as "global financial systems," do not recognize the intimate connections of these systems with nature; "the world's people" does not point to their aspirations regarding money and natural resources; and "the Internet of everything" does not include the experiences of life, especially values. The sphere is more multi-dimensional than any current term encapsulates.

To understand our roles in this socio-econo-biosphere, we must recognize not only its complex interconnectivity, but also another aspect of its dimensionality. One dimension is the *bottom-up* view, coming from the community. There is also the *outside-in* dimension, composed of those who

are not part of the community, such as experts and nongovernmental agencies (or, at times, exploiters), trying to help with skills, ideas, and (sometimes) money. Finally, there is the *top-down* dimension, from the government, big business, or religion, which brings streams of values, finances, policies, and power to communities. Bottom-up, outside-in, and top-down are all valid perspectives, just as economics, biology, information technology, and human relations are all valid disciplines to understand the complex world. None is truer than the other, but it is easy for each viewer (or aspect of the sphere) to think his or her perspective is the most authentic. SEED-SCALE, on the other hand, assigns validity to *each* dimension in this always-adapting world.

Here is where the problem really becomes a problem. Each group talks with its own language, its differing priorities, and—of course—its own paperwork, viewing itself as pivotal in a world of many pivots. When using these one-dimensional views, the socio-econo-biosphere loses its potential. But if a language evolves from the perspective of all these groups, this allows synergies among them to follow, and redirected impacts come from these synergies. Emergence thus happens.

Except for the content-laden terms of economics, biology, sociology, and the like, our search through the literature of development did not uncover an existing multidimensional vocabulary, so we created terminology that will be discussed more fully in subsequent chapters. In brief, *SCALE One* defines the axis of change where numerical growth occurs—the community level—and the world of communities expanding the seeds of change. *SCALE Squared* outlines the axis that brings in knowledge and skills, where the quality of life rises—for example, better health improves family finances and allows children to go to school. *SCALE Cubed* is the enabling environment of values, policies, and financing.

Each of these three dimensions describes a type of action. SCALE One is the quantity of change. SCALE Squared is the quality of life. SCALE Cubed is a change in the multidimensional environment that fosters quantity and quality. Individuals can move between these functions. For example, community-based action is not limited to actions by the community; nor is bringing in knowledge and skills solely a function of experts. Articulating this complex dimensionality of our lives delineates the space in which communities operate, in much the same way as latitude, longitude, and altitude define geographical space, or x, y, and z dimensions de-

fine mathematical space. With this new multidimensional understanding of social change, we have the capacity to understand what previously was difficult to grasp and describe in the changes around us.

To facilitate such action, SEED-SCALE helps each community find itself within the complexity of options—and then helps the community move along the arc of change in this dimensionality that it both desires and can implement. To find the starting point, the process is SEED. To describe roles in the change that follows, SCALEs One, Squared, and Cubed apply. To find the actions to make the next move, the *seven tasks* offer universal follow-up steps. To assess whether the desired direction is in line with principles, the *five criteria* allow cogent self-evaluations.

Once change is started, where will it lead? We do not know. But what is available now in this journey is a process any group can use. Communities can start with what they have; they need not wait for someone to help them. Systems of social advancement, nature conservation, and human justice can never be managed, but—since we live in their socio-econo-info-biosphere—they can be engaged, and it is possible to learn better ways of doing this. Individual and community lives will never be fully developed, but each life and each community can always advance further. The foundation within this improvement is values. We build our actions on our values, applied through our principles. The products of such life's work are our accumulated knowledge, health, and wealth. *Just and Lasting Change* is a handbook of life, a process by which communities can move toward greater ownership of their futures.

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I THE CLAIM

A Just and Lasting Future Is Possible

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1

Getting Started

On December 17, 1903, Wilbur and Orville Wright launched a "crate of sticks, linen, and wire" into the air from an obscure American beach. On that day, men broke free from Earth's gravitational grip, but for the next five years, the world's public scarcely noticed that people could fly. Then, in 1908, Wilbur took to the sky over Paris in two successive flights. Crowds poured out of the city to see a person riding in an "air ship," launching a new understanding of human possibility. Aspirations for this change led to actions in many other countries. Within a year, Louis Bleriot flew across the English Channel. One year later, Alberto Santos-Dumont had an airplane for sale for pleasure flying. Half a dozen airplane manufacturers began operating in the United States. By 1913, the end of the first decade of aviation, metal was replacing sticks and linen. Igor Sikorsky was operating a huge four-engine craft in Russia. Aircraft literally and figuratively took off worldwide, and aspirations drove this technology.

SEED-SCALE describes how aspirations, perhaps the most powerful of human energies, can be harnessed. A dynamic, which we call the *revolution of rising aspirations*, connects aspirations and actions in a feedback loop. What people desire leads to action, which in turn leads to new aspirations. This soaring human desire, connected to actions, is how people can grow positive futures for their communities. The opportunity for better lives is available to everyone. It does not require a resource that people do not have, or special technologies. Better lives are possible by humans learning to utilize what they have more effectively; they can learn that now, and apply it anywhere.

Aspirations to fly arose because people saw the once-impossible happen. By 1913, more than 40,000 people had taken to the air in at least thirty-nine countries. The year 1919 saw the first flight across the Atlantic, and another from England to Australia. By the 1920s, ordinary people were going for airplane joyrides: "pay a dollar to look down and see the roof of your house." Twenty-five years after the Wright brothers' Paris demonstration, commercial airplanes were carrying passengers; by the 1950s, jets were circling the globe; and sixty years later, a few people even flew to the moon.

Air travel's surge did not start with the first flight. It started with the first flight that people actually *saw*. The 1903 flight was a technical breakthrough, but the revolution of moving from place to place in a new way from how people had moved for 3 million years, a revolution that still continues, began with people understanding that flight was possible. Aspirations connected to action. More recently, a parallel adoption of technology occurred with the mobile telephone—which, in one decade, took off in the fastest adoption of a technology in human history. People experienced what could result from being connected to the world. In India, where one-fifth of humanity now lives, mobile phones exceed bicycle travel, radios, or TVs as a means of communication; only pen and paper and shoes are more prevalent.[1]

Although technology is impressive, the key to building better lives is not a series of technical breakthroughs, but changes in peoples' behavior. Airplanes and mobile phones are technologies; their use represents behavioral alterations. This is a book about the latter: how to change the way we behave. First, we must see that a more just and lasting change is possible. Illustrating that is one feature of this volume, which is a set of demonstrations presented in case studies, but this book also shows how to achieve a more just and lasting future through an explanation of the process. Undergirding all such people-led transformations are four principles:

1. Build from success—give people a starting point that works, or an example.
2. Create a three-way partnership—use actions by people, arising from the bottom-up; engage change-agents, possessing ideas and training, from outside-in; and employ these actions within the top-down arenas of policies, values, and financing.

3. Decide based on evidence—utilize the facts of local reality that are driving decisions.
4. Change behaviors—reallocate roles, based on the functions needed.

These four principles all center on the objective of a rising quality of life. People, in a desire to help others, do not want to give up aspects of the good life they already have—they want even more for themselves. So the goal must be to aspire for better collective lives. For that, the first principle tells where to start. The second outlines the team. The third guides the journey. And the fourth points to what must be done—indeed, what everyone is capable of doing.

The opportunity now presented is to direct all of this to a more just and lasting future. Our world changes around us. To keep abreast, we continually adapt our needs to optimize all that is affecting the lives we lead, adjusting our behaviors in ways that fit our circumstances. We change locally, but the new life-feature is that in doing so, we must take advantage of the changing global context. The world is now interconnected. Local scope is no longer adequate; we must engage globally but act locally.

Global engagement can be random, with victimization resulting from processes of entropy. Or this engagement can be done intentionally, which leads to local improvement by working with what's working and using what is succeeding. The team to accomplish this is a three-way partnership, guided by facts that can cross factions and can inform their actions with an accurate understanding of the real world. Role reallocation results in more-effective behaviors.

Earlier efforts to define the dynamics of social change often failed, because they focused on one input, usually money (something that is hard to get); one kind of leadership (usually that of an expert, who might not know the local context); needs (which meant building from what was broken in the community); and a search for answers (i.e., "deliverables," which often meant proof to a donor, rather than to the people affected). Several questionable principles are operating in such traditional social change: the expert knows best, direction comes from plans, people should focus on problems, and action is implemented through a resource people compete over. Each of these four items may be wrong, as each lacks a self-correcting component. Are four possible wrongs likely to get an action right?

But it is possible to have people direct themselves and take the complexities of local realities into account. Such bottom-up growth does not magically happen. Grass provides an analogy. For bottom-up growth from its roots, grass needs top-down nourishment from sun and rain and outside-in nourishment from soil micronutrients. Similarly, community growth requires a partnership. If done-by-themselves change was possible, then more communities, recognizing this self-interest, would have achieved their aspirations long ago.

Not only is it improbable for communities to rise on their own, but, in rising, local bottom-up growth needs to operate in a global context. While this book mostly speaks of the supra-socio-econo-biosphere context, there is an undermining economic dynamic worth an early focus: specifically, trade controlled by and for corporations and governmental forces that claim to be working in the peoples' interests but seldom truly are.[2] If communities strengthen, though, they can use this dynamic positively.

Communities are increasingly shaped by economics and affected most directly by trade. Expressed in 1990 US dollars, international trade grew from US$31 billion in 1950 to US$3.6 trillion four decades later, more than elevenfold, while world economic output grew fivefold, from US$3.8 trillion to US$28.9 trillion.[3] The trend is moving beyond the abilities of even governments to regulate. Its growth is supported by mega-agencies (the World Trade Organization, World Bank, International Monetary Fund, and the like) that restructure supposedly sovereign governments, so trade expands further. Recognizing impacts on the natural environment but leaving them aside for the moment, we note that some trade benefits communities and some damages them, but it undeniably affects them.

The meaningful counterbalance is community globalization—communities engaging global opportunities, in a manner parallel to that of trade. Organized communities can take advantage of trade. In addition, communities are small enough to be able to understand their own self-interest, yet large enough to be able to generate a first level of efficiencies of scale. A globalized economy cannot be stopped, but it can be proactively engaged. To take advantage of global forces and not be its victims, communities must increase their strength, not in confrontation, but in partnership.

Community (as we use the term) *is any group that has something in common and has the potential to act cooperatively.* Usually communities consist of people who live in a geographic region and interact as a cohesive unit.

But there are other communities—unions, religious groups, ethnic alliances, and the like—that can also organize. Most people are members of multiple communities. A defining characteristic is that a community functions best if it is small enough so people either know or know about one another and can organize for joint action.

It is possible to build from one or several community-based projects and, using these as learning and extension centers, scale up across a region. SEED-SCALE advocates having this expansion happen by using larger regional frameworks to reinforce the local one. Thus a community is being enabled by the system, not fighting it, so local solutions self-assemble across the region. This internal-growth approach contrasts with methods that seek changes driven by external funding and prescribed solutions. It does not matter whether these external answers come from religious dogmas, international aid, Marxism, politicians seeking office, or even advertisements from the consumer society; external prescriptions increasingly bombard and are trying to change the local sphere. Communities are continually being told what to do by many outside groups, and SEED-SCALE helps people productively engage these externalities. With their collective local energies, communities then allocate their local resources—and also interact with the global bombardments. And as communities get better with local allocation, they learn to engage the forces from outside more effectively. Over time, community-specific solutions build to a momentum strong enough to redirect the larger forces. Such community-specific growth occurs through an iteration of seven tasks.

Iterative Cycle of Action → Localized Solutions

Visible (and visitable) successes now exist, and communities can model their actions on these. The successes illustrate how three-way partnerships function, as well as how reallocated roles can result in new behaviors. They are found in almost all political and economic contexts.

When grow-with-what-you-have occurs in cycles, similar to agricultural or academic years, each cycle becomes a stage for a next cycle. The agricultural cycle that farmers follow all over the world is to prepare the field, plow, plant, protect, irrigate, and then harvest. To establish such a cycle for social change, we advocate seven tasks. A farmer who spends his time plowing will never get to planting—let alone the harvest. In the academic cycle, a perfectionist student who takes too much time completing

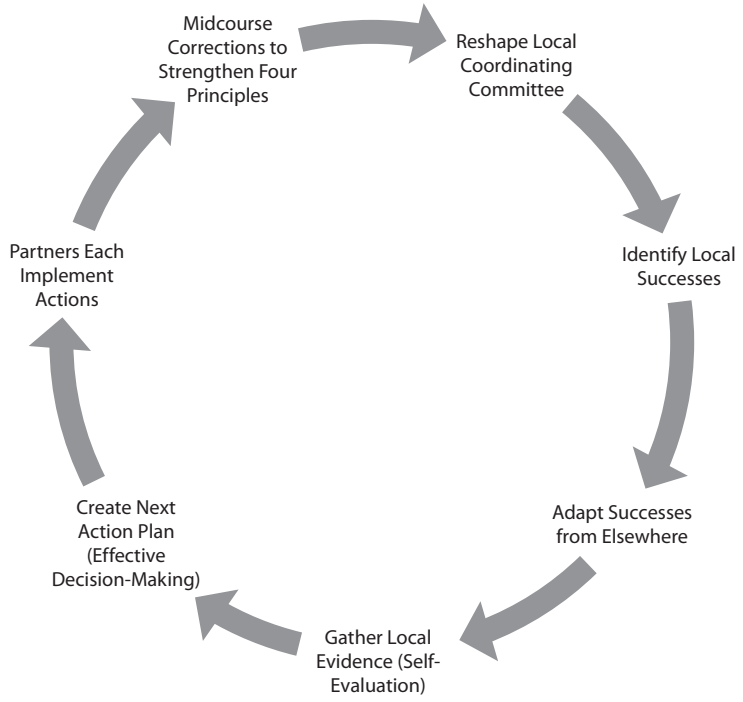
Midcourse Corrections to Strengthen Four Principles
Reshape Local Coordinating Committee
Identify Local Successes
Adapt Successes from Elsewhere
Gather Local Evidence (Self-Evaluation)
Create Next Action Plan (Effective Decision-Making)
Partners Each Implement Actions

Figure 1.1. Cycle of seven tasks

individual assignments will not graduate. Keep tasks simple. If one task is made too complex, its benefit is lost. Run the whole cycle (figure 1.1).

The seven social-change tasks (under three headings) are:

Building Capacity

1. Create or re-create a coordinating committee and use that to mobilize both the community and its partners. An individual leader can get caught between factions, while a committee can bring groups together and has the potential to distribute responsibilities.
2. Identify past successes. An existing success within a community is the strongest base for future success. On its own, a community may not see its strengths; experts can help identify these.
3. Visit other communities to learn about their successes. Find what worked for others and adapt these practices. Send community members who will actually perform the tasks on these visits (instead of just the powerful ones), so the workers get trained.

Envisioning Where to Go: SEED (Self-Evaluation for Effective Decision-making)

4. Use self-evaluation. Evaluate the situation objectively—and for that, get evidence. Use evidence as the base, instead of decisions stemming from opinions, power, or who has the money.
5. Employ effective decision-making. Discuss the sources of problems, explore possible solutions, and prioritize what is doable. Then the committee (or the whole community) can draw up a workplan to assign jobs to all.

Taking Action

6. Act. Involve as many community members as possible. Start projects that will be popular. Action grows when it is successful and addresses priorities.
7. Make midcourse corrections. Identify gaps. Corrections should strengthen the principles—commend success, grow partnerships, refine evidence, nurture behavior changes—with the larger result that community energy rises. Strengthening principles is the objective, and it is more important than achieving workplan targets, because community fabric grows stronger through strengthened principles.

Reshaping our future is about changing how we live. To highlight that, from time to time in this book we present biological parallels instead of the engineering or commercial metaphors commonly used by development experts. A flock of geese flying in V formation can travel 1,000 miles without resting, using the physical principles of drafting, whereas a single bird cannot go half that distance. The discipline of their V allows geese to utilize lift coming off the tips of one another's wings, so the flock has a flying range 60% greater than if each bird flew alone. Because the leader tires without the lift of others' wings, the leadership role rotates and others move to the front. When a goose moves out of formation, increased drag on its wings reminds it to fall back into position. Just as encouragement helps a group of humans, as geese fly together they honk to those who share their effort. Should a bird become sick, wounded, or exhausted and must descend from the flock, other geese drop out to protect it, and they remain together until they are able to fly as a small group or join a passing flock.

Parallels to ourselves are obvious. One worth emphasizing is the whole-flock perspective. Nature utilizes an alpha-leadership organization when needs are immediate, such as providing protection against threats to life. When the task is to move long distances, nature summons collective action.

A second behavioral aspect of geese is also helpful: how they learn to fly. Goslings do not hatch from the egg with flight skills. They are ground birds for several weeks as feathers giving warmth molt into those of flight-worthiness. Then the goslings enter flight school, racing back and forth on the ground while trying to take off, with adults alongside as flight instructors, honking taxiing instructions. An airborne hop, then a youngster tumbles head over tail feathers to the ground. Again, into the air, with an instructor honking alongside, not just the mother, but any goose in the flock. Landing practice follows, with the novices careening into the ground at first, having not yet learned to slow down. True crash landings occur; fortunately, gosling bones are not brittle. A month has gone by, and the young birds are now able to fly, their muscles and flight feathers fully grown. Then comes a lesson in formation flight, where young geese are taught by the rest of the flock. Similarly, for millions of years, the human species has been a people of the tribe, where lessons are passed from generation to generation.

Emphasizing a collective benefit flaunts an oft-argued tenet of economics and, indeed, of modern culture: attending to self-interest. A focus primarily on one's own interests results in competition, and that often separates people. Advancing an individual may benefit that person, but when peers do not follow, not only is collective progress not happening, but the advancement of one may also have come about because others in the group were taken advantage of. Case studies in this book show how collective advancement moves the whole group forward, not just its entrepreneurial members.

Several years ago, we worked with the White Mountain Apache tribe in the American Southwest, helping them adapt these concepts. Before contact with Europeans, the Apache hunted, gathered, and farmed according to their values, which were collective, but the new American nation imposed a different lifestyle on them. In discussions with the tribe about how to put together a vision drawing from Apache culture, we asked, "How would you describe a just and sustainable future?" They answered, "*Dish chi be kho bil na zei*" (Our whole community walking forward together). The

Apaches' statement, like the long flight of the geese, acknowledges the centrality of interdependence.

A whole community walking together has no losers—except those who choose not to participate. Each step leads into unknown territory, where options are uncertain and hazards unknown, but community members go forward with mutual support. A person entering into such territory alone can lose the way. But when moving together, many feet feel when the group's steps have gone off the path—like geese that feel the increased drag when they veer away from the V formation. No map shows the way, but a process informs the travel. In this form of learning, we build potential for generations to come, just as earlier generations built the opportunities we enjoy today.

Four Examples of Development with Worldwide Impact

This book is about engaging local community action at scale. Four examples of past intentional actions show how such change can take off. No example is perfect, and each had unintended negative consequences, but intentional action can launch a greater change. The opportunity such actions offer is to learn from their example, and then improve by reducing inequities, having a less-damaging impact on the environment, and spending less money.

The Green Revolution: The First Intentional Scale Up to Succeed Internationally

Over the final four decades of the twentieth century, scientific contributions known collectively as the Green Revolution increased the global food supply so dramatically that famines, a growing worldwide threat in the 1940s and 1950s, virtually disappeared. One billion people were projected to have avoided starvation, although severe hunger persists, food distribution remains inequitable, and natural disasters are increasingly affecting crop- and pasturelands. Despite the facts that more than twice as many people must be fed and population pressures continue to rise, in 1993 there was greater food security in all countries except North Korea.[4] The Green Revolution was successful, so much so that its leader won the Nobel Peace Prize in 1970.

Acknowledging its success is not to overlook negative effects that also accompanied it: commercialization of food security, consolidation

of agriculture by wealthy farmers, unsustainable pressures on soil and water, loss of genetic diversity, movement from polyculture to monoculture crops, less-sustainable livelihoods for farmers. These negatives will persist. Many argue that their impacts are worse than the benefit of a billion lives saved. Our point is not to enter into the important good/bad argument about the Green Revolution itself, but to emphasize how its method shows a scaling-up process that is a proven demonstration of international applications of one of SEED-SCALE's five criteria: iteration (get a job done, and the next time do it better).

The Green Revolution was intentional—following success on a one-country basis in Mexico, the vision went global. That was achieved by bringing together a package of answers for local application—policies, financing, technologies, field science, and behavioral adaptations—and localized solutions were then implemented globally. This is a process referred to in this book as "experimentation and action learning," what is meant by SCALE Squared.

As a first step in its global expansion, scientists developed technical interventions for corn, wheat, rice, and potatoes. Next, agricultural centers adapted the packages to regional environments, cultures, and economies, monitoring nitrogen and other soil nutrients to evolve fertilizers, promoting irrigation to accelerate growth, selectively breeding high-yield seeds, and advocating the use of powered machinery. In the implementation phase that followed, demonstration farms in subregions around the world further modified the packages to their locales and encouraged visits to these farms so others could see the results (experimentation and action learning). Additionally, governments opened up new land, created new financial mechanisms, subsidized the digging of wells and canals, improved food storage, built factories to make machinery, and supported more-efficient food distribution—all to create an enabling, top-down environment. Throughout, politicians were taken on educational trips, and farmers received incentives to implement the packages of interventions. Finally, an independent global coordinating body was set up—through this, science connected with policy, new policies restructured national financial and administrative systems, and parallel massive educational efforts followed.

Problems arose. When wealthy farmers saw how crop income could triple, those with money started buying land from poorer farmers. When farmers saw that adding fertilizer made crop production increase by half

as much again, they guessed that applying even more fertilizer would cause production to increase further. Productivity grew, but over time, adding pesticides left residues of chemical pollutants that people ingested with their food, and with this came rising cancer rates in places like India. Deep-well pumping, supported by government subsidies to drill those wells (so the farmers would vote for the politicians), systematically lowered water tables. Still deeper wells had to be drilled, and although this lowered the water table farther still, it also kept the farmers voting the politicians back into office. The application of so much water had salinized the soils in some places; elsewhere, the water table got too low to be used any more. The rich farmers then took their profits and moved away.

The Green Revolution began by figuring out more-productive ways to grow food. Starting with science is important, but the science, over time, narrowly focused on crop production. It did not look at the unfolding social consequences, or take the resulting larger environmental consequences seriously. Impacts in the socio-econo-biosphere have latitudinal ripples. Planners, even Nobel-level scientists, are not capable of designing solutions that can be omnisciently delivered. What works better is to have solutions constantly evolving, fitting local circumstances.

Two conclusions are important about the Green Revolution. First, it is possible to launch a global scaling-up program that brings huge benefits. Second, it is also possible to have negative, unintended consequences. The lesson, then, is to strive for a process that grows the benefits (something the Green Revolution had), but also evaluates the results at broad levels and makes corrections (which this revolution did not do). In addition to the Green Revolution and Child Survival Revolution, the global tobacco-control case study (chapter 17) shows a parallel experience of science driving global scaling up.

The Child Survival Revolution

Following on the Green Revolution—and indeed consciously patterning itself on it (chapter 12)—the Child Survival Revolution was set up during the second half of the twentieth century. It also was a success, in this instance reducing child mortality worldwide to a greater extent than in all previous human history.[5] In the Child Survival Revolution, research centers achieved simplified technical breakthroughs that enabled

parents to diagnose and treat the leading causes of childhood death, and communities to develop and expand potable water supplies, public health education, family planning, and immunization programs, as well as to promote breast feeding and child nutrition.

The medical or scientific interventions helped, but the education of girls, at first an unplanned consequence, was more important in creating an impact. Expanding the consciousness of women allowed implementation of the science. Enabling girls to attend school is not what health professionals would immediately advocate as the foundation of health, as typically they want to focus on clinics and doctor training. But ongoing monitoring of the Child Survival Revolution enlarged our understanding both of a more effective package of actions and the enabling environment created by girls' education. Collectively, millions of lives were saved as a result. One consequence is the realization that the most important health workers in the world are now recognized to be mothers—especially educated mothers—not physicians or surgeons.

It is worth focusing on the above experience. There is a perception that health comes from the provision of health services—actions done *to* people—but such actions are more accurately termed "sickness services." To improve health, the number-one requirement is personal ownership; the number-one care location is homes, and the most effective health prescription is behavior change—actions done *by* people. The Child Survival Revolution empowered health actions by mothers through new knowledge, with a life-saving impact that was greater than that of doctors and drugs, surgeons and knives—an impact that is lasting. The resource being used here needs emphasis: mothers are in place all over the world. Educating them is low cost, compared with professional health services. But the complete answer is not health-related actions by mothers contrasted with those at clinics; rather, it is both. It is just that mothers, and health education for them, are usually overlooked, as this half of the medical answer offers a less lucrative means for professionals to make money.

As with the Green Revolution, negative consequences attended the Child Survival Revolution. The push to meet targets created vertical programs that fractured the primary health-care systems of many poor countries. The 1978 International Conference on Primary Health Care, held in Alma-Ata (then in Soviet Kazakhstan), had emphasized health as a priority for national policies, and more health funding subsequently followed.

That focus helped countries achieve their child-survival goals—that was the good side—but it also made countries dependent on outside funding, which meant national health ministries often began paying attention to donors more than to their peoples' health needs.

Nonetheless, the behavior changes also expanded: mothers by the millions focused on purifying their water; containing their household and human wastes; changing the foods fed to their children, turning away from commercial formulas; and forming groups to support each other. In those groups, they learned about other issues that they could act on, such as immunizations, birthing help, and nutritional supplements (such as vitamin A, iodine, and folic acid). The women in the groups also supported each other in actions on domestic violence, accurate and early diagnoses of illnesses, and decisions as to whether or not they got pregnant.

It was through this larger-than-medical-services approach that the empowerment of women grew. Girls being allowed to go to school was an early consequence, and the education of mothers continued. Empowerment expanded from an approach that increased their own efficacy to their increasing voice in meetings and community decision-making; their engagement in money management; their initiatives to travel; their adoption of new modes of dress, makeup, songs, and language; and, finally, to their movement into the globalizing world.

The Revolution of Connections

Modern social change is helpfully understood through the lens of ever-rapid, ever-increasing global connections. The Revolution of Connections was not planned, unlike the Green and Child Survival Revolutions. Instead, this revolution emerged. (Emergence in social systems is mentioned in this book, but it is a concept we have discussed more completely in our parallel volume, *Empowerment on an Unstable Planet*.)[6]

The Revolution of Connections has multiple faces: transportation, finance, commerce, and information. In terms of physical connections, in twenty-four carefully planned hours, nearly any place in the world can be reached from any other place, for a price that each year comes more and more within the resources of greater numbers of people, and (with economic inflation) the real cost to utilize this service goes down. The world now has 7 billion people, and that number feels even larger because almost all of these people are moving.

Financial connections lie behind the movement of people. As mentioned repeatedly in this book, feedback loops—where improving quality also causes quantity to increase—drive scaling up. Air travel, like almost all forms of physical transportation, came into existence because an initial use of airplanes was for a business transaction: government subsidies for carrying mail, not people. Earlier, the development of sailing ships, roads, canals, and railways had all come about because of similar incentives driven by commerce, and in each of these, the more that means of transportation was used, the better the quality became. Quality and quantity are interlinked phenomena, and moving this process back and forth across national boundaries produces financial rewards.

Commerce returns other benefits to people: expanded ideas, accompanied by an increased understanding of these concepts. The result is informational connectedness, which leads to the interconnection of everything: physical, economic, and conceptual. All are coded in information, and all are constantly moving into new relationships, to wit, the socio-econo-biosphere. This is particularly true with everything being on the Internet. The result is that the nature of ideas evolves. The growth of trees, movements of the Earth's crust, the daily actions of millions of people—all add information to the system, and this information enhances our ideas; hence our suggestion to perhaps change the term to socio-econo-info-biosphere. The most important part of this concept is that the complex is one sphere; these are not separate sociological, economic, and informational biospheres. And feedback loops enable these interlinked spheres.

This is not the former world of cause and effect, but a new understanding of the globe as a complex adaptive system. In the Revolution of Connections, people still control actions, and the opportunity to change relationships resides in our actions. Until recently, this large, adaptive system was not globally oriented, and it was appropriate to focus on the parts: to see, measure, and own this world of cause and effect. And while it is still important to understand the parts, now we must also understand their relationships within a global system.

The point we are emphasizing about this global revolution is that it is emerging, and was not planned. With a swipe of a plastic card or a click of a keyboard, time zones are crossed, currencies traded, ideas translated into languages the speaker does not know. What makes such events possible across sectors is standardization. Protocols develop to allow standard-

ization, and learning to use protocols permits control over the always-growing relationships. Today, I am driving a car in West Virginia. Tomorrow, I have traveled south and am in eastern New South Wales—if not there actually, I can access this opposite hemisphere by a flip of a TV remote or the keys on a mobile phone. Geographies have not altered; what happened is that communities have come together in new relationships, a distinctive feature of our many-splendored age, one that we can learn to utilize.

Through our actual and virtual movements, what is local is also part of the global sphere. Everything is being transported all over the world. Successful communities are those that access these processes, so each community can, from its own locale, take part in what happens and be integrated with the whole. This revolution has connected us physically, financially, ideologically, and—with ever-increasing reality—through our values. Every village on Earth is connected. Not all connections are good, of course; some can lead to crime, the use of harmful drugs, the exploitation of migrant labor, or infectious disease. Many especially resist the connectivity of values (a resistance that may both build strife yet also grow empowerment). An emphasis on the desired principles is important in promoting the good and diminishing the bad. The primacy of making midcourse corrections based on principles (values) is how growth occurs without moving toward victimization.

Polio: An Example of Scale-Up Floundering

The world campaign to eradicate polio seemed poised for success in 2010. Every country on Earth except three had zero reported cases, including even that usual outlier, North Korea. But in the years since 2010, flaws have been revealed in this scaling-up approach. Worldwide eradication of polio might yet succeed—one of us worked for decades to help make this happen—but predicting success or failure is not the point here. This particular global campaign reveals the tension that can exist between scaling-up approaches. Chapter 3 presents four approaches to scaling up—each has its appropriate use—and the two strategies that have not worked hand in hand with polio eradication are the explosion and biological approaches. Explosion calls for a focused campaign using external resources, while a biological approach operates within systems.

By 1988, polio had dramatically declined around the world, because children were being inoculated within systems (such as school programs

and health clinics), and delivery occurred through systems in locations where the children already were. But when the formal world polio-eradication program began in 1988, a dynamic that drove it was that wealthy nations wanted to stop funding inoculation activities for diseases that were no longer present in their own countries. So a group of them brought a proposal for worldwide polio eradication before the World Health Organization (WHO). At that point, a substantial global health-delivery system was already in place (with its structure and confidence in it augmented by the then recent success in smallpox eradication), and this in-place, fund-seeking group was looking for new crusades, along with new funding to support them. Polio seemed ideal, in part because it was a disease that the Western world could relate to, as polio had been so recently prevalent there, and the populace in these countries had seen a successful reduction in this disease. WHO approved this eradication proposal, with the understanding that its extension (along with other health objectives, such as immunizations, nutritional supplements, child care, and the like) would continue within comprehensive care systems.

The worldwide programs moved forward. In these, relatively modest amounts of money were applied, and polio disappeared from more than half the world. For countries with scant health services, the eradication efforts did not have an existing system to utilize, so they created special polio-eradication systems. In these places, national polio days were set up, prompted and supported by donor money. Some of these countries were very large (such as India, China, and Indonesia), but the campaigns still worked.

By 2015, Afghanistan, Pakistan, and Nigeria were the only nations that still reported polio cases, and they were all countries where there were rebellions. Polio-eradication teams had difficulty entering these war-riven areas. Combatants in Central America had put aside their insurgencies in order to vaccinate their children, so why not in these three global regions? Nonetheless, the eradication crusade pressed on. Nigeria perhaps is now polio free, but global concerns have been rising, because in 2014, polio had returned to Somalia, Kenya, and Syria. The world health community redoubled its efforts, allocated more money, and extended eradication deadlines.

The scaling-up strategy has begun revealing its weaknesses. Countries that had eliminated polio for a decade or more, such as Somalia, Kenya,

and Syria, now have populations of unvaccinated children. Unimmunized children are exposed to the disease by migrants who arrived from countries where polio cases still exist. A second difficulty has been that as the focus of the eradication crusade shifted from its earlier integration with existing services, it increasingly ignored partnerships with other areas people trust (Islam, in this instance). Polio was regarded solely as a health condition, and, as a consequence, allies were lost outside the health arena. And, vis-à-vis the Islamic community, polio eradication was seen as part of a Western agenda (which was where the funding was coming from). Other international partners in this health effort were militarily invading their countries, so nationalistic Islamic groups began undermining the polio-eradication campaign. A specific instance had given substance to this negative association, since polio-team workers had helped identify the house where Osama Bin Laden was hiding. A further handicap added to this confusion with cultural values, as global financiers castigated those who did not cooperate with the polio-eradication efforts; shaming poor yet proud people seldom wins their cooperation. Simply put, the polio-only focus by donors was losing in-country support. Scaling up works best when it is done within systems, taking advantage of their purposes. This fosters the quantitative extension of one purpose by utilizing qualitative life improvements in the system's other purposes.

If the objective is simple, then explosion approaches succeed. If the problem lies within societal conditions, then a societal solution is more likely to be effective. Polio is certainly a health problem. But it is also a societal problem, an illness that is masked when societies are poor but comes forward as they become wealthier. And when societies are at war, when societies are misstating the purposes of health workers, and—most importantly—when there is no health infrastructure with which to deliver health-care services, a polio-eradication campaign still needs to be used, but creating one in the absence of infrastructure, during wartime, becomes expensive, if not impossible.

What works best is using the right scaling-up approach. What costs less is an approach that extends through existing systems. The Taylor Commission (a task force of the Pan American Health Organization, or PAHO, chaired by Carl) investigated how polio was eradicated from North, Central, and South America.[7] In the Americas, adequate infrastructures had mostly been available, but even in war-riven Central America, where

special intervention was needed, it was possible to create a partnership with the guerrilla movements.

As the global polio-eradication campaign became frustrated in the late 1990s, and even more so in the 2000s, money poured in and national plus international attention turned to this disease again, but still with a limited focus. Not only was a partnership with mothers (addressing a range of their priorities) overlooked, but the inclusion of religion as part of the partnership was also ignored. In societal scaling up, a range of delivery contexts is available: via services such as health care and education, as well as through businesses, the media, and religion. We experienced a relevant parallel in the use of religion as an ally in the early 1980s, in China. The country was energetically extending immunization through its health services, but it ran into difficulty in Tibet, where nearly no rural health services existed then (chapters 20 and 21). The usual approach when health services are not available (i.e., purchasing Toyota Land Cruisers and setting up focused campaigns) did not reach Tibet's scattered, suspicious population. As the UNICEF representative for China, Carl went to the tenth Panchen Lama, who sent a message through the religious structures of Tibet, a system the formal government had difficulty utilizing. Tibet then quickly became a region in China with early full immunization coverage and eradicated polio.

Health systems keep viewing polio as a disease. But it is more completely understood as a condition of poverty, for which societal engagement is the means through which it can be eliminated. The polio virus has existed for centuries among the poor, but their children's more-robust immune systems had it under control. With sanitation becoming more prevalent in the West in the early nineteenth century, polio exploded as an epidemic, especially during summertime, debilitating children of both the wealthy and the poor. To view the poor of the world as not having resources for a partnership is short sighted. All communities have resources, but these may be unfamiliar to those distant from them.

When the polio-eradication campaign finally succeeds, it will do so either because it will shift its approach or because it will spend extraordinary amounts of money. Yet for societal challenges, a deep resource potential exists in every society. Consider the change of awareness that happened with the world's other successful disease-elimination effort (outside

of smallpox eradication), that of rinderpest, an infectious viral disease of cud-chewing mammals. Rinderpest was a scourge for millennia, at times killing an entire herd of animals, or dropping whole communities into poverty through a loss of livestock. After World War II, efforts toward its eradication began. The approach first tried getting farmers to bring animals to central stations (similar to telling women to bring their children to clinics for national polio days). But herders are busy and roam a long distance away from these stations. Dr. Peter Roeder described the move to partnership: "The way we previously did it was really mindless. We'd get up before dawn to drive long distances. We'd be wrestling the animals to the ground, it'd get stinking hot, and pretty soon the locals would get fed up and walk away." The people who were working so hard were white men dressed in khakis, smelling of soaps and deodorants. "But," Dr. Roeder continued, "someone local, dressed as a local, with mutton fat rubbed in his hair, could walk among the herds and stick in a needle and barely be noticed. We'd be lucky to get 20 percent immunity in a herd; our local guys could get 90, 95 percent."[8]

The polio-eradication campaign now struggles. It is two decades behind its initial schedule, has spent many billions of dollars more than was first planned, and still faces a disease that has escaped its once almost-closed net. Humanity will be better off when polio eventually is eradicated, as it almost surely will be. The scaling-up approach that the campaign uses, though, is myopic in calling only for more focus and more money.

In learning from this polio-eradication case, set aside for the moment the billions spent to build the vertical campaign (US$13 billion now and maybe another US$5 billion in the future, actually a cheap price compared with the price of the scourge). Consider instead the most important investment, time: of professionals to find the isolated children of the world, of mothers, of that lost to children—and, almost always overlooked, of that lost by persons hired away from other jobs (in this case, health services keeping millions of children from dying of other causes). This legion of opportunity from something readily available is what this book describes as both a method and a resource. Use the resource that is there to evolve the right approach for each challenge.

In the 1950s and 1960s, malaria supposedly could be eradicated by bombarding mosquito-breeding habitats with DDT. With the publication

of Rachel Carson's *Silent Spring*, the public woke up to the environmental consequences of that campaign. Then people thought that taking DDT off the market would remediate the unintended consequences. But mutations started happening, and malaria is now back, with virulence. Diseases do have direct causal agents, and it is tempting to focus on these, but their larger sources are in society. Malaria, polio, and indeed almost all "health" issues are not cured by health services—to address them requires societal action, as society itself is the host.

As we wrote two decades ago, when the debate on scaling up a global polio response was in its early years: "Elimination of paralytic poliomyelitis will obviously benefit every country. However, benefits for children in poor countries must be balanced against many more common threats to health and life. Even in South Asia and sub-Saharan Africa, where polio incidence remains highest, polio is responsible for less than 2% of years lived with disability."[9]

Throwing money at a disease is like throwing troops into a war. Solving societal problems (from war to diseases) with non-societal solutions seldom works—or is very expensive in terms of the people involved and the amount of money spent. Sometimes the enemy may be overwhelmed, as happened with smallpox, but an explosion approach is a high-risk strategy. Sending in technology, like sending in military troops, can disrupt systems with radiating life-threatening, unintended consequences.

Large-scale impact is possible. But to achieve that, it is important to select the right strategy. Most people today feel that their margin for failure is thin and that they are generally better off being cautious. They do not immediately join in when outsiders bring them a new idea, one that was not on their local agenda. Large-scale change is possible, but it is most reliable not by *doing to* but by *doing by*; that is, by iterative, success-based steps grounded in local agendas, ones that engage a breadth of partnerships, ones that grow, as much as possible, from resources inside systems and do not create competition over resources.

We ride the socio-econo-biosphere together. We are in an age of rising risks. We need a mode of engaging challenges that is both reliable and affordable. Even wealthy societies are increasingly unable to care for their growing numbers of poor, of alienated youth, of forgotten elderly, of marginalized mothers, of homeless people, and of exploited minorities. But

every community has its own priorities, and this—which often appears as a difference to those outside the community—actually is an entry point for our collective improvement. This book advances a process through which local priorities can become the bases for global actions. In doing so, the socio-econo-biosphere starts to heal itself.

2

Our Maturing Understanding of Community Change

Around the world, villages and cities give rise to positive change. The people's voice is heard through their actions—from the Arab Spring; to the regular vote in the world's largest democracy, India; to Thailand, where people keep pushing back against the military and the monarch; to the United States, as people take to the streets when their judicial systems let them down; even to China, with people protesting against its tighter controls on their speech. Ordinary citizens now speak at international meetings—and are officially recognized. This voice against unfair systems was heard early, in Latin America during the 1960s, and it has continued there.

The voice of the people is as old (and as important) as civilization, but we want to lift up one activist who helped open our ears, the Brazilian Paolo Freire. In 1970, Freire had come up from Central America to be a visiting professor at Harvard University. In April, on the day President Richard Nixon had authorized US forces to bomb Cambodia's villages, several of us remained after Freire's seminar, gathered around a hot-water dispenser to mix up instant coffee. Urgency drove our conversation.

Freire stirred his coffee with a plastic spoon in a plastic cup. "Scratch where the people itch if you want to mobilize community," he said. "In each community begin with its felt needs; then confidence can build. Start with the itch, the issues that irritate. Go into the villages and get your hands dirty. At most be a midwife to the process; never father it, for then it is bastardized, but alone the people never can rise. The outsider's role is to find the issues that are theirs. Because you know one community, don't assume you know the next. Each community's concerns are unique."

Freire was adamant that what mattered was not plans, budgets, technical assistance, inputs/outputs, or any form of logical framework. To mobilize communities, "scratch where the people itch." Global conferences seldom changed things at the community level, he argued. They will talk of doing so, but those who talk do not know how to listen. Freire's contribution was to drill into us the priority of the issues people felt were important—and to do this, what he wanted was words, the right words, as his specialty was using literacy for social change. (Chapter 7 shows how literacy also launched social change in China.) Freire blessed this insight with the difficult-to-pronounce name "conscientization."[1]

Through literacy, Freire was adept at finding the issues people would mobilize behind. He would sit in taverns, homes, and meeting places, listening. When he heard which concerns were mentioned most often, he would teach people to write and read the key words. He painted the words in big letters on walls and put out cyclostyle (a form of copying using stencils) newsletters. He went out at night and painted the words here and there, throughout a town. People would wake up—literally—to the words and become conscientized to ideas. Freire mobilized entire communities through literacy drives. He was convinced that once people could function in the world of reading and writing, people would organize—and in organizing they would achieve strength, so that they could gather with a unified voice to act on the issues that mattered in their lives.

A literacy program could begin with just one individual—and from that point on, each one could teach another person. With their own words in front of them, words that mattered to them, people would take collective action. It did not take entrenched leaders long to realize that shared words, leading to shared action, threatened their interests. As a result, once literacy campaigns had been launched, Freire and his followers were usually ejected from a region. Several times we sat with Freirian activists in Central America as they discussed how long it would be until they, the outsiders, would be thrown out of a town, prompting them to start mobilizing in another place. The conscientized people whom they left behind would struggle on, usually clutching at simplistic answers to profound problems.

Despite its origins in revolutionary change, Freire's thesis that development must start with peoples' priorities is now almost universally accepted among professionals and officials, regardless of their political

views.[2] Almost equally universally, once lip service is paid, the precept is seldom acted on. Political change was what Freire wanted, believing that space could not be created to bring in people-sensitive policies until corrupt leaders were driven out. Figuring out a starting point was what made his impact so significant. (Where his thesis fell down was in its absence of method after a good start.)

The history of social change shows that calls for revolution seldom lead to sustained progress, unless leadership change is accompanied by growing community capacity. Overthrowing authority usually brings in new authoritarianism, because those good at dismembering a system are seldom skilled at building new ones. Sustained change requires engaging the whole society. But the task is hard. Cross-societal change is desired, but each community wants something different. There may be powerful (and perhaps even easy) ways to launch peoples' aspirations, but how to continue them within a now-activated community is hard.

The Global Discussion

After World War II, international social development ceased to be led primarily by religious missions and philanthropic foundations. Awareness had grown that governments could improve the lives of their citizens through actions, and not just govern them. They also recognized that improving social conditions bolstered national security, both internally and internationally, making it easier to govern. Therefore governments, which previously had left social development to other institutions, started major programs.

The success of the Marshall Plan in helping to reconstruct Europe affirmed the belief that huge infusions of targeted financial aid enabled newly independent, less-developed countries to quickly join the ranks of the prosperous. At the same time—also on the assumption of financing enabling change—the United Nations created development agencies, the United States expanded its foreign-aid program worldwide, and the World Bank and regional banks were established. As Europe strengthened, it joined the effort in the 1960s. Nongovernmental and philanthropic organizations were created and older ones expanded. By the 1970s, thousands of programs were being launched all over the world. Some countries (Costa Rica, Thailand, Brazil, Greece, Singapore, and Ceylon) started to show quick, obvious progress.

Soon scholars were analyzing these nations to determine the dynamics that made a transformative change occur. In 1960, Walt Rostow suggested that a definable mix could come together, like chemicals in a reaction, and create the capacity for a society to "take off."[3] He graphed how societies advanced, with development starting slowly and then expanding exponentially. His analysis built on the capitalist approach and stood in contrast to growing claims of a socialist approach that had advanced itself as the global model for going to scale with equitable change. Indeed, Rostow called his approach "a non-communist manifesto."

Development could expand exponentially, which was clear from the astonishing speed with which changes in banking, industry, and transportation had spread throughout the world in the first half of the twentieth century, and was accelerating even faster after World War II. It took a few more decades, in which vast sums of foreign aid were being optimistically invested (US$2.3 trillion by the end of the twentieth century), to realize that such change does not occur in a steady or linear way, driven by the money invested.

Development involves many false starts, real starts that are hard to recognize, and adjustments that continually synthesize innovations, which then produce progress. This iterative seeking is how the process works, like biological evolution (which is one reason why biological, rather than mechanical, scaling up is so effective). An energized electron does not slide gradually from one orbit to another; it jumps into the new orbit. There are quantum shifts, but these are experimental, not planned, discovering whether a location in the new position works. We live in the socio-econo-biosphere, a large, complex system that is always experimenting. (In this instance it is perhaps helpful to add the information aspect and call it the socio-econo-info-biosphere.) In biology, although genetic mutations constantly take place, more-significant change occurs when equilibria are punctuated by numerous, almost simultaneous mutations.[4] Take-off points happen when a cluster of experiments emerge with a new design.

Global awareness expanded from all directions through the formative years of international engagement as an array of visionary thinkers—such as René Dubos, Gunnar Myrdal, Zhou Enlai, Barbara Ward, Julius Nyerere, Rachel Carson, Ivan Illich, Pete Seeger, and Buckminster Fuller—began to place development within larger contexts and advocate, in varying

ways, for changing the relationships inside systems. These people saw that it was *what was done by*, not *what was done to*, that was important and, often unknowingly, stressed a heretofore overlooked theme: interconnectedness. Perhaps the timing was coincidental, but in those same years, human beings first left the Earth in spacecraft and looked back at it, seeing the planet as a whole.

Since the 1970s, a series of powerful proponents have continued to turn the focus back to people, addressing what we can do with what we have, looking with particular insight at the human dimension within complex linkages. A handful of studies shifted the paradigm: Alan Schumacher's *Small Is Beautiful*; Mahbub ul Haq's annual series of *Human Development* reports for the UN; Jim Grant's annual series of *State of the World's Children* reports; Gro Harlem Brundtland's *Our Common Future*; Lester Brown's annual *State of the World* reports; David Korten's *When Corporations Rule the World*; Robert Chambers's *Whose Reality Counts? Putting the First Last*; Richard Jolly's *Development with a Human Face*; and Amartya Sen's *Democracy as Freedom*.

But now, when we have a general understanding of a process that works, disillusionment appears to be growing. When there is potential, when we understand the process, an increasing number of voices point out the failures, saying that the reach of development is not reaching out, and sometimes is self-defeating.[5] These hand-wringers are overlooking what can happen when people use their hands (and heads) rather than reaching for their wallets.

A threat to our existence is now coupled with these rising social alarms, and it almost certainly is valid, supported by solid evidence: the fundamental systems of the planet have been disrupted by our quest for individualistic better lives. Bill McKibben launched this public awareness with *The End of Nature*, and he has continued with a worldwide public-education campaign, 350.org. Albert Gore brought this problem forward in *An Inconvenient Truth*. The Intergovernmental Panel on Climate Change, organized under the auspices of United Nations, has given scientific grounding to the reality that all of the Earth's systems, not just its weather and the height of its seas, are beginning a major flux. The climate is changing, but it is more than just nature's climate. It also involves financial insecurity, as we realize that our banks and advisory boards cannot reliably alleviate it; it is the ineffectuality of our military, where we send out the world's

best soldiers, and they consistently lose wars. The flux consists of a world of unpredictability in what used to be a world of patterns.

Former relationships do not know what their new relationships are. This world of flux is scary if viewed solely according to the entropy of life. But the beauty of understanding this situation as a complex of systems is that flux also creates opportunity, as communities learn. Development now can allow people to improve their lives when they take repeated, systematic actions—one followed by another—and learn from actions by others.

A platform of policy exists—an important awareness in a world where governance falters. Shared global policy grows (fitfully, to be sure) in a world of great differences. Some countries insist on playing by their own rules, like adolescent children, but the global community of influence is expanding. The movement began in 1944, with the Bretton Woods decisions, and in 1972 the Stockholm World Conference on the Environment issued a statement that all humankind "has the fundamental right to freedom, equality, and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being."[6] This acknowledgment of the growing planetary crisis ran counter to the earlier consensus that all was well, and, since then, planning and actions regarding development connected to the biosphere have followed.

In 1978, the World Conference on Primary Health Care, held in Alma-Ata under the leadership of Halfdan Mahler from the World Health Organization, resulted not in the anticipated proposals for more doctors and hospitals, but in three precepts to help improve health everywhere: providing formal health care as close to homes as possible, community participation, and intersectorial involvement. The impact on global policy was extraordinary, acknowledging the potential of common people to take action. Carl codrafted the basic conference document, which brought together evidence from around the world, and then watched the delegates grow excited as they understood what was now possible for their people. His seeing countries change their priorities, based solely on international accords, reinforced our understanding that change begins by enabling hope in peoples' homes and then is coupled with a process through which to act.[7]

A series of world summits followed after that. The World Summit for Children (attended by seventy-one heads of state); the environmental

summit (in Rio); and various summits on social development (in Copenhagen), women (in Beijing), population (in Cairo), shelter (in Istanbul), children (in New York), and trade (in many places)—each advanced an agenda, and many points on these agendas have been achieved. When they took place, it was through a partnership between policy and people. The input of nongovernmental agencies at these meetings has shown that a great deal can be done in virtually every sector within communities.

Throughout the literature on this topic, scholars have been describing what happens in successful projects,[8] but their descriptions have two major limitations. First, their discussions of social change presuppose a cause-and-effect paradigm. Sometimes these are single causes (typically associations with poverty) and sometimes they are multicausal (history played this role, the environment functioned in thus and such a way, structural conditions were influenced in this fashion), but the solution that is given in both instances is usually prescribed in allocations of money. The second limitation is that their discussions have almost uniformly been historical: what *has* happened. To benefit our lives, the question to be answered must be forward looking. How do people create a just and lasting future for themselves—not for the world as a whole, but for their community?

Potential Solutions

Why has it been so difficult for scholars to give answers people can use, specifically, answers that people can apply in their particular community and that do not require massive resources from the outside? Our response is that it is impossible to predict the future. It seems as though we might, because it is possible to explain the past, but we can't, because the real world only occasionally is linear and is susceptible to cause and effect. Hindsight shows a trail of actions leading to specific results, but those connections, and their key pivots, cannot be foreseen. Connections can be made retrospectively, but not prospectively. Life has surprises.

To find a way forward in complex adaptive systems, instead of the linear approach of seeking answers, defining goals, then driving toward them, what is successful (as shown by the systems in nature) is to utilize a grow-as-you-go process. Goal planning may succeed in business or the military, but the complexity of those systems is not that of the socio-econo-biosphere. To engage and shape the future, we must meet every day with a process: one action at a time, in systematic growth. And this process is

as intentional as the linear, only it is driven by principles (or rules, or values).

The life we move through is preeminently complex, recursive, and multidimensional, with synergistic random connections. But life is unpredictable, as are people. Add to that the vagaries of the financial world, and resource use (with its unintended consequences), and then encase these dynamics within Earth's changing natural systems. The result is the socio-econo-biosphere, which now is connected by a net of information. This is where we live. Some might argue that it is impossible to think that we can shape better lives within this complexity, yet indeed we can—it has been done across time and cultures.

A common phrase that describes humans' ability to solve high-level challenges is "rocket science" or "brain surgery." But sending a rocket to the moon involved straight Newtonian physics, reducible to mathematical formulas. Cutting into a human brain surely must be done with precision, but this is a mechanical skill: the challenge is that there is no forgiveness for error, and such surgery is increasingly done by robotic devices. Shaping a just and lasting change for communities requires more than science and machines, and there is always a possibility for error in its application. "Embrace the error," as Robert Chambers, the social-change guru, is wont to say.

Social-change agents are bold souls who seek to solve the unsolvable, where right and wrong solutions do not exist, and where their solutions, when presented, will almost always be viewed as inadequate by their fellows. They are tackling the most difficult of life's challenges. They lack money, they lack a military, they have to use whatever is at hand—and they must succeed, for peoples' lives depend on it (and, increasingly, so does planetary life). At best, these agents of change can make the situation better rather than worse, but they will seldom produce the level of happiness people want. Their solutions will never have a stopping point at which victory will be declared, because even if there is a good moment, everyone knows that life goes on and a new set of events will be at hand. Indeed, in life the challenges can never be clearly stated, fully defined, or accurately known. We live and work in a world where these features have been described as "wicked problems."[9]

Social-change agents do not need to become wizards of the wicked-problem world—magic is not being called for—but they need to understand

that to be effective, their role is not to hand out the solutions, not to possess the resources, but to empower others to find the solutions and use the resources that each situation always contains. The impossible is tackled by engaging all the possibilities of the people involved. Such empowerment is not a charismatic call to action, but one of education, of helping people learn to work more effectively with what each one has at hand today. As Paulo Freire told us, help people "scratch where they itch." And that means that the people are doing the scratching, not the expert. (SCALE can also be an acronym for Systematized Collaboration to Align Leaders and Experts.)

So while we now live in a world of wealth and many opportunities, where life for most of humanity is better than our forebearers ever could have imagined, we also live in a world of unpredictability, where potential implosion could happen at any moment. The great questions of life are, "In the daily actions we take, how do we more closely approach prosperity and security each day, and how do we avoid the bad?"

Answering these questions is where SEED-SCALE offers help. It presents itself as a *universal process to evolve site-specific solutions*. It does not tell us what to do; rather, it tells us how to make the decisions that will fit local conditions and our specific resource availability. Its evidence base, after two decades of applications worldwide, gives visitable examples that—by using a process rooted in understanding how to engage complex adaptive systems, a process where, in contrast to traditional social actions, better solutions can be created—have the impressive, measurable dividends of taking half the time, with double the impact, for one-fifth the cost. These are remarkable claims, but they are the general ratio resulting from an application of SEED-SCALE. They are achieved by taking advantage of the synergies that open up when the socio-econo-biosphere is engaged, and when the wicked problem becomes the means to the solution. For it is in the myriad relationships and resources that cause this complexity that the potential exists to find more effective paths.

Complex adaptive systems function through the dynamics inherent in the system, dynamics driven by energies, with the various parts moved and affected by those energies. External energies and parts certainly also have an effect, but when they enter such a system, they are absorbed by (and must respond to) the complexities that are already operating there. What then occurs is adaptation within the process of adoption—the system absorbs the invasion. Impacts are impossible to reliably predict in

these systems. Inputs introduced with some specific goal in mind do have consequences, but such inputs do not reliably produce what was desired, and they almost always have consequences that are both unintended and unforeseen. Raising the magnitude of the inputs does not reliably increase the likelihood of controlling the outcome—unless the magnitude is so great that it controls the system (which can happen through substantial external force or extensive financing, but then both force and financing must be sustained to hold the new status quo in place).

The ineffectiveness of using money to solve problems is commonly recognized, but the practice persists because alternatives to it are not understood. The ineffectiveness of armies invading other countries is now more common than their successes, but such efforts at control keep being tried. The evidence base for the nonfunctionality of monetary or military control continues to mount. Six decades of socialist experiments have been condemned as too rigid. Religious movements that are structured on morality have been shown to be idealistic; those built from dogma have had their narrowness exposed; and, almost by definition, most are exclusionary. The notion advanced by some nongovernmental organizations—that rapid, site-specific development could grow outside of government structures and become an alternative system—is a notion that has not yet been reliably demonstrated, except that in many cases these nongovernmental organizations have greatly expanded internally. Capitalism is the remaining social theoretical system that still is supposedly standing. But the flaws in capitalism—rising inequity, environmental decay, and unsustainable economies—are also becoming more evident, at a global scale.[10]

In this context, community-based action is the major hope. The evidence of history is persuasive: communities setting to work and using what resources they have has always been what has advanced life (acknowledging also that this often worked by communities taking what they needed from other resource bases, such as the environment, or other ethnicities, or through colonialism). While change comes from what communities do, community-based action does not reside in the naively simplistic notion of bottom-up mobilization—since communities that are on the bottom cannot grow on their own, rising up against all the forces that seek to take advantage of them.

But the future won't stop coming. Today, shaping it toward a better life requires communities to proactively engage the forces of globalization and

learn how to improve themselves by using these forces. In this quest, mistakes will be frequent. These should not be seen as failures, but as opportunities for self-learning. The future cannot be predicted, but what can reliably engage it is a process of adaptation within complex adaptive systems.

3

Making a Large and Lasting Impact

From October through December 1949, Carl E. Taylor was a member of the first scientific expedition to enter western Nepal and, as a member of that expedition, he conducted that nation's first health survey. In the fall of 1999, fifty years after Carl's first visit, his grandson, Luke, age twelve, a member of the fourth tier of this transgenerational discussion, ran down the same trail, sweeping the air with his butterfly net. Swoosh. And with a flick of his net, the thirteenth butterfly species of the day was caught.

On that October 28, three generations of our family were walking through the spine of the Himalaya, walking from the plains of India to the high Tibetan plateau. We were surveying the same villages covered by the 1949 expedition to determine patterns that had unfolded in Nepal's development across fifty years. In 1949, Nepal had been closed to outsiders, but by 1999, large changes had reached this remote part of Earth: 67,000 tourists would walk the trail that year, one which had first been walked by outsiders in 1949; some Nepalis from the villages along this trail were now so wealthy that they went to Bangkok and Hong Kong for their medical treatments; and others among them owned homes in England and the United States.

Fifty years earlier, Carl had also swung a butterfly net at this spot, catching butterflies as he walked along the Kali Gandaki River, conducting his health assessments. Why catch butterflies, and why was Luke doing this again fifty years later? Butterflies are sensitive to habitat and can be used as indicator species of ecological niches (using indicators to assess a system is discussed in appendix A).[1] Carl had named this particular spot where Luke was now swinging his net "butterfly paradise," having found

more species here than anywhere else in the walk from India to Tibet. Fifty years later, Luke also found this site thick with fluttering species.

Why, after half a century, when Nepal had experienced so many changes, were butterflies still so prevalent in this locale? The answer came from Bob Fleming Jr., the ecologist son of the leader of the 1949 expedition, who was also along on this fifty-year follow-up trek. The butterflies were here because of lantana, a shrub that had come in after a landslide swept the hillside above into the Kali Gandaki River. Lantana, though, is a hardy and fast-spreading plant native to Mexico, with fruits that are favored by many bird species. Before the first people from the New World had walked up this trail, a shrub from Mexico had established itself on this slope; as people circle the world, so do plants. Lantana was able to grow here because people had cut down the trees across the whole slope and the ground kept shifting in this spot, due to landslides.

Evidence we were gathering (measured by tree growth and interviews), showed that people had brought the greatest change to Nepal's environment. This did not begin in the previous fifty years, when the country was first opening up to outsiders, but during the hundred years before that, when the slopes had been cleared of trees and carved to create thousands of terraces, because people had gone outside of Nepal and learned new practices. Terracing—a new behavior to improve peoples' lives—had disrupted the mountains and led to environmental change, as well as population growth through improved health practices, larger incomes, and an expanded food supply.

But in this complex, adapting system of environmental, social, and economic change, what was happening in Nepal is not so simple a reality. Change did not arise just from more people, much less only from nature; it resulted from the interplay of many factors. What our survey was revealing was that since 1949, despite Nepal's population growth, despite tens of thousands tourists with their demands, the environmental quality of the land had improved in many ways, with more trees on the slopes and, in the forests, wild animals (such as leopards) that were not present a half century before. That lantana patch was a degraded ecology, even though it had more butterflies, but the ecology of the larger valley was better, with more trees and wild animals.

A doubling of population numbers of Nepalis, the through-passage of 67,000 tourists a year, and the demands for firewood for homes and hun-

dreds of new lodges and restaurants had not destroyed the forests. Why? The loss of trees and other biological species was greater at lower altitudes, down where few foreign tourists came and where there was less development. At the higher elevations, where ecosystems are more fragile and human pressures greatest (especially pressures from tourism), the environment was stronger. Here, a partnership among communities, experts, and the Nepali government had catalyzed a mobilization that restored the environment. The resulting better quality of life and better environment had come about because of a national nongovernmental agency that, in 1985, had begun organizing both the government and local communities to create the Annapurna Conservation Area Project, and a host of similar projects were subsequently under way. The outside-in had made a real difference.

More important than the nongovernmental group, though, were bottom-up actions by local people. Even at the lower elevations, where damage had been greatest, improvements were taking place. Some years earlier, the government had given control of forest lands back to the people and mandated that in their taking control, local forest-user groups must be created, thus forming a partnership between the government and communities. These user groups (enabled through a top-down policy change by the government) were expanding across Nepal, with 20,000 of them existing in 2010. Many had started in the Kali Gandaki Valley, and that was the reason for the trees now growing tall there. By 2010, and with further findings from another return visit, forest expansion had grown dramatically, more proof of major reforestation efforts.[2] No conservation service had come in; the government had simply changed policies and a capacity to act had grown among the people. Social change, as it almost always does, came about through a partnership between the top-down, the outside-in, and the bottom-up (and it is informative to note that each of these partners was claiming credit).

At the higher elevations, a different type of partnership was making a difference: one between an outside-in organization and the communities. This partnership allowed locally owned tourist lodges to spring up in response to foreign tourism. As the number of tourists rose each year, and as these tourists discovered the local capacity to accommodate them, more tourists came. (Not surprisingly, the tourist companies started to claim credit for the improvements in the Nepalis' lives.) The impacts kept radiating outward. The lodges needed firewood to warm the tourists and

cook their food—and the local population, which had doubled, also needed firewood. But with the forest-protection policies of the outside conservation organization in place, while some trees in the area were being cut, more were growing. Determining which trees should be cut was evidence-based management. Thus the partnership was adopting new practices.

And in the recovering forests, large golden mountain goats (*thar*), which had been absent in 1949, were returning to the Himalayan crags. Leopards once more passed through villages at night. Like the Qomolangma (Mount Everest) National Nature Preserve in Tibet (chapter 20), the Annapurna Conservation Area Project had partnered with local people. People were not viewed as the problem, but rather as the basis for positive action, through altering their behaviors.

People are changing the planet—not just in Nepal, but globally—and when their actions are mindless, the quality of life goes down. But when actions are thought through, informed by assessment and driven by scientific evidence—especially when actions occur through partnerships—the quality of life rises. At work are the principles of building from successes, three-way partnerships, evidence-based decisions, and behavior change.

The Annapurna Conservation Area Project made a significant contribution, but its role (along with the part played by government, business, and the community) was catalytic, not causal. Yes, the number of people in the area had gone up, the reach of socioeconomic development was demanding resources from nature, people were wearing machine-made clothing, their feet were protected by shoes, their skin was washed, and their homes had glass windows (and, in many cases, electricity and running water)—all developments that might also be viewed as damaging nature. Complex changes were under way, but it was a haphazard assemblage. School buildings were erected in every town, but where were the teachers? The schools were empty, because the teachers were not being paid. Most homes had gardens containing at least half a dozen vegetables not found in these valleys in 1949, and where did these come from? Outwardly, it appeared as though change was occurring, but alongside what seemed to be growing prosperity were other stories. Such mixed outcomes happen worldwide.

The evidence we were gathering showed that fifty years of changes had benefited four-fifths of Nepal's population. The 1949 expedition had created an evidentiary baseline by collecting specimens for Chicago's Field Museum of Natural History and establishing a traveling clinic to monitor

the health status of the people.[3] Half a century later, a similar expedition assembled a parallel assessment.[4] Opportunities had opened for 80% of the Nepalese people, who had had a small parcel of land, a core business, a modicum of education, or the ability to leave their village as a soldier or porter. But our evidence showed this progress had left the poorest 20% behind. Health clinics and schools required fees these people lacked. They did not own land along the trails that tourists walked, so they could not even open a tea stall. Opportunities eluded them. There was a demand for porters to carry loads, but Nepal's population had tripled, so by 1999 there was a line of applicants for these jobs. Getting a place at the front of that line commonly required a bribe to the porter broker, and porters who showed up wearing rags at the bus stop where tourists got off found themselves passed over for porters wearing cast-off mountaineering clothing and speaking a few words of English.

Ever since the theories of John Maynard Keynes, the frame around the picture of social advancement has been of the "invisible hand" of the marketplace making the needed adjustments. But what this view consistently overlooks is the exclusion of the invisible people, those on the margins who are left behind by marketplace dynamics that function through competition for scarce resources. An enabling structure is needed to incorporate those on the outside edges (which is why SEED-SCALE has a criterion of inclusiveness). When the processes of change are left to the tug and pull of a marketplace, advancement favors those with some (even a small) initial advantage, and while the overall averages may be going up, a rising quality of life does not benefit the absolute poor. The distribution gap between rich and poor grows wider.

In 1949, a more level economic playing field had existed. The currency of living at that time was barter: a farmer could trade produce for labor. In a barter economy, one driven by human energies, almost every person has something to trade. But by 1999, the marketplace required money; it was no longer possible to stand in a shop and offer the owner a chicken for some rice or to use new services (to take one's child to school, or get on a bus, or pay for a phone call) and propose payment by carrying loads. In Nepal, while opportunities for most people are increasing, the evidence also shows an increase in the burdens of those being left behind.

With its bottom one-fifth set back, all Nepalese society suffers. A return to a barter economy is not social advancement, but opportunity for

all is. Change is creating fragmented communities. As disparities grow between the haves and have-nots, progress for all remains partial. Gross economic averages contain within their rising aggregates significant life crises, with a declining quality of life for those on the bottom of the curve, the level where change is most needed.[5] Today, looking at global statistics, 1 billion people still struggle in the same absolute poverty as half a century ago, when the great majority started to advance so dramatically.

The story in Nepal is emblematic of the rest of globe—we have a strikingly beautiful world and splendid diversity among the 7.3 billion people alive today, of which roughly 6 billion are better off each year and 1 billion are stagnating.[6] Such fracturing in the world need not exist—the UN's Gini coefficient shows that some countries are closing the gap (Denmark, Austria, Norway, Singapore, and Finland). These countries have done so by including, along with the modern development processes, parallel processes that engage opportunities for all. The system works for the great majority, but this does not mean it is working perfectly—to advance opportunity for all, there may yet be a place for the human-energy approach.

One of the most baffling challenges for development planners has been how to do scaling up that extends to the margins and across a region. (When trying to *do* scaling up, contrasted with *growing* it, resources typically end before full coverage is achieved.) At least four distinct scaling-up philosophies are possible.[7] On a first read, SEED-SCALE may appear to fit only in what is termed the biological approach. It indeed thrives there. But SEED-SCALE can also grow out of the additive approach. Indeed, it can even start in the blueprint approach and become sustainable. And a crisis that calls for an explosion intervention can be a starting point to initiate SEED-SCALE, which then can engage all of a community's energies.

The Blueprint Approach

The most common method used to scale up programs is the *blueprint approach*: a design is created by experts, and then taken to the people through a three-step process. A fix is fashioned in headquarters somewhere, then a plan is drawn up to replicate that fix in field situations, followed by funding secured to deliver that fix across the target region. This approach mimics social engineering. The economies of the former Soviet bloc attempted this centrally planned approach. The Peace Corps used it to distribute "superchickens" (i.e., modern chickens, which are research-

evolved animals with extraordinary egg and meat production). A host of other innovations in education, health, and food security have been similarly sent out, as blueprints, to thousands of villages as part of the UN's Millennium Development Goals program. International development banks promote financial programs, such as microcredit for women, in this manner. Conservationists have standardized what a nature preserve should be—the idea that people are the problem, and that nature must be protected from peoples' self-centered actions—and an extension of this model has been exported.

Blueprints have become both more sophisticated and more locally sensitive, with provisions for environmental impact assessments, participatory planning, total-quality management, and various other humanizing approaches. But the process remains expert driven. Experts look at local needs, refer to successes in other places, develop a design adjusted to local circumstances, and prescribe a package of interventions to be administered through hierarchies of governmental agencies or nongovernmental organizations. Communities are invited in to respond to the blueprint, but they are seldom permitted to change it. They can usually comment on how things will happen, but not on what the implementation will be. This scaling-up style feels right for those doing it, since it applies the formal techniques of government oversight, industrial production, and business management. It is often associated with the term *professional approach*.

This approach is indeed effective when tasks are straightforward, when mechanical-like solutions can assemble an appropriate response, when solutions require little site-specific modification, and when the problem is not fundamentally informed by local perceptions or shaped by the wisdom of the people's voice. Infrastructure construction projects are ideal candidates (e.g., building a network of schools, bridges, water-supply projects, or even clinics). Blueprints are often effective early on in development activities, when communities have low technical skills and technical voids are apparent.

Although experts may speak the local dialect and drink tea at the right times, the blueprint approach remains an outside-in solution. It is hard to create a blueprint so humanly prescient as to effectively change peoples' behaviors. Therefore, blueprints are often planned with incentives for their implementation, or disincentives for the pursuit of other options. People will, of course, do as they're told if adequately scared, paid, or coerced. But

when greed or fear is the primary motivation, people are working for a reason other than the project itself. Today incentives and disincentives may drive health-care actions; tomorrow, with a different donor, it may be programs related to women. Might people become puppets of development? Further, questions of sustainability quickly enter when outside-in projects stop providing the incentives and disincentives.

The Explosion Approach

The *explosion approach* is best used to solve a one-time problem quickly. When a community is faced with a crisis needing a quick response—if a flood is coming, or an epidemic is starting—a solution is thrust at that emergency. Such solutions are not good at changing societal or natural systems that may be contributing to the problems, but they are good at stopping or starting something, and often that is all that is needed. The explosion approach is similar to the police or the military entering a conflict and breaking it up, or doctors isolating sick patients in an epidemic. Societal causal factors are still present and probably are incubating subsequent, similar threats, but the immediate crisis is taken care of. In chapter 6 we describe how crises (which often require an explosion approach) can be flux moments to open up an opportunity for a longer-lasting, greater change.

The explosion approach is effective in addressing temporary, specific needs. Government leaders get kudos for their action, visiting sites in helicopters and showing solidarity with those affected by the crisis. Donors get gratification when they send help. Such interventions fit into cycles of funding and provide measurable indicators. The approach also avoids the pitfalls of dependency. Sometimes the materiel sent in can be transformed into something more permanent, such as emergency clinics evolving into health clinics, but explosion answers generally do not solve societal or ecosystem dynamics, or even structural economic flaws. That is where SEED-SCALE or other community-based solutions can follow, augmenting explosion interventions.

The speed and efficiency of the explosion approach often tempts people to adopt it for complex situations. For example, spraying mosquito-prone habitats with DDT protected soldiers from malaria during World War II, but this practice had no intended subsequent role. Nonetheless, its success suggested to some people that the application of DDT could be turned into

a worldwide program to eradicate malaria. Deaths from malaria dropped to tantalizingly low levels after two decades—but mosquitoes developed genetic resistance to DDT, and the window of opportunity to annihilate all mosquito-carried protozoans on Earth was closed (if it indeed was ever truly open). In addition, unforeseen environmental consequences followed. Malaria was not a simple challenge solved by killing mosquitoes, and this illustrates the danger of explosion approaches: most of life's challenges do not succumb to targeted interventions.

On the other hand, a piggybacking of the explosion approach onto earlier blueprint approaches had spectacular success in the worldwide campaign to eradicate smallpox. Today, one of humanity's most ancient scourges is gone, and gone forever. Instead of simply sending out teams to inoculate everyone with smallpox vaccine, which would have been the explosion approach, the World Health Organization and cooperating governments first achieved major reductions in the number of people contracting smallpox by using local primary-health services, which widely distributed vaccination coverage. The second phase sought out localized outbreaks, and its actions focused on these problem areas, using the explosion model to eliminate the virus in military-style campaigns.

The now-collapsing global polio-eradication campaign started by using the smallpox model but did not recognize the more complex societal context in which polio thrives. This failure not only demonstrated its flawed scaling-up strategy, but humanity is now more exposed to epidemics, because the campaign, in persisting with its explosion fix, overpowered the primary health-care infrastructure of some countries, making these countries vulnerable to a range of recurring health problems.

An explosion approach requires an outside-in influx of resources and personnel, so potential users should consider whether the returns truly justify the costs of setting aside all other actions, as well as plan for how to maintain the benefits achieved after the campaign target is met. For example, an immunization campaign that commandeers all personnel and forms of transportation to get vaccinations into the countryside, such as the polio-eradication campaign noted above, usually takes people away from routine health services that are providing basic care. Depending on how it is done, such a redeployment can strengthen or weaken the system.

The Additive Approach

Proponents of bottom-up development typically use an *additive approach*, expanding results from one project to a next. The beginning is a pilot program, which then is repeated elsewhere, one by one. In its pure form, this focuses on taking a model that worked in one place and adapting it to conditions in another locale, with those applying it being sensitive to local particularities of culture and natural environment. These types of projects appeal because the people associated with them usually have a fervor that stimulates high-quality work, and their attention to the conditions where it will be applied calls forth local participation.

The term "additive" refers to the manner of replication, and scaling up occurs as projects get added on. This approach grows neighborhood by neighborhood, and ten or more years are commonly invested in developing a cluster of involved communities (unlike blueprint and explosion approaches, which grow much faster). When areas are added, the projects often join together. As project leaders mature, as people transform local materials using modern technology, and as local values are respected and perhaps featured, such projects often assume showcase status. The attention to detail makes the solution seem to have gotten it right.

Worldwide, the additive approach has been undeniably effective. It is much favored by nongovernmental organizations and religious mission groups. These agencies make a commitment to one site, learn local conditions, train people, adapt interventions, and develop site-specific funding. Usually their teams pay great attention to building capacity and concentrate on grassroots mobilization, but while there is indeed grassroots mobilization in many such projects, the organization holds onto leadership, turning control over to local people somewhat reluctantly. Indeed, sometimes local groups must demand control. Also, in this approach, the expanding projects are often working so beautifully that the identity of the external organization superimposes on the local aspects.

Although such projects work beautifully in their own sites, they inevitably face long-term challenges, precisely because they remain regional and because they have been so carefully nurtured. Issues crop up locally. Whose project is it, really? What happens when the outside support phases out? Can success continue without that external leadership? The sponsoring agency also faces questions. Did the initial success come just from growth in the local context, from special resources, or from some other

feature? Does the donor have the patience and the resources to work yet another time through the slow, early stages?

If the objective is to have a particular focus on a particular community, or to conduct research, or to prove a philosophical point, the additive approach makes sense. Similarly, it seems logical if the area of interest is someplace where a focus is needed for some reason, such as building community support for a nature conservation program. This approach would also make sense for a cultural group that has been long marginalized and needs to be brought into the larger dialogue. But if the objective is to scale up across a larger area, growth by ones and twos is not the way to accomplish this.

The Conundrum of Control

Each of the three approaches described so far presumes that communities are unlikely to initiate change on their own, unless they happen to have an enlightened, motivated leader. For example, in Curitiba (chapter 11) a visionary mayor played a crucial role. More commonly, though, in the above three approaches, outsiders (experts, officials, or a donor) initiate change by coming in and starting the transformation. They recommend a design, usually sweetening their proposal with incentives, or they motivate the community by describing dangers the people had not known about, or they arrive when drawn by a tragedy. Generally, when success can be claimed, they depart.

Although these outsiders often build solid working relationships through community participation, their modus operandi is control, revealed, for instance, when the outsider's name welcomes you as you drive into the community (the local leader's control is also revealed when that person's name is on the welcome board). At the same time, putting an outsider's or insider's name on a project can be a small price to pay for their support. An outsider-run project comes with the danger that it will build dependency, not community commitment. Control is neither good nor bad, but it needs to be noted.

Blueprint, explosion, and additive approaches may change and expand a program, but they build community capacity only when the outside partners give up control. This concept is easy to grasp, but actual transfer is difficult. It is analogous to the charismatic leader who rises up from within and gets an important job done—and then does not leave when it is time

to do so. To achieve organic change from inside the community, the imperative is to train more and more local people to increasingly participate in the locus of control. And, like raising a child, control eventually must be relinquished, usually faster than the parent partner is ready to accept.

A fourth approach is one that shares control from the beginning, and ownership remains dynamic. This is leadership by a team, with a built-in process of growth. Ideally, this is what occurs in a *biological approach*. Repeating the seven tasks each year provides an incremental way to start from local seeds and shared control, reallocating responsibilities as growth occurs. SCALE's five criteria guide this growth, and its four principles are the standards by which these criteria are applied.

The Biological Approach

Quantitatively and qualitatively, biological growth occurs from a resource base that is already present. In a biological approach, some debt is okay, and some assistance (of varying types) from outside is probably needed, but it primarily consists of *growth using what you have*. The biological approach starts with experiments in one population unit (four or five participants being a good starting number, to inform and stimulate each other) to find a mix of actions suited to local circumstances. This beginning develops a seed project that is able to grow locally. Growth then comes by using the site's enabling environment and extending the outreach of that seed. The project's own policies and financing systems are used; outside systems are not brought in.

Consider this approach's parallel with nature. A new species arises through mutation or is somehow brought into a locale. Then it evolves by making adjustments to survive better within that ecological area. Additional evolutionary adjustments allow the species to replicate not just in its original site, but throughout the entire ecological niche. Two things are occurring here: quantitative expansion (i.e., growth through sheer numbers), slowly at first but perhaps becoming faster later on; and qualitative growth, developing a better fit within the niche. The biological approach combines the advantages of the additive model—beginning slowly and adapting to the situation—with the speed and potential reach of the other two models. Three characteristics define it: exponential growth; healthy, integrated relationships; and tensegrity (defined on page 59).

Exponential Growth

Exponential growth was the SCALE quest that prompted Jim Grant, executive director of UNICEF, to initiate the international task forces that first worked to evolve SEED-SCALE. When we were leading those task forces in the early 1990s, we were unaware of the beginnings of complexity theory in mathematics and physics, which would evolve into the mode of understanding known as emergence. (Emergence, described in our book *Empowerment on an Unstable Planet*, is a vitally helpful clarification of SEED-SCALE and biological growth.)

A feature of replication in complex systems is that growth happens through the simultaneous expansion of multiple subsystems throughout the body, rather than beginning first with one unit, followed by the production of many similar units, as would happen in constructing a building or machines. That mechanistic model results in an arithmetic progression, something like 10, 20, 30, 40, 50, and so forth. Biological growth, however, follows an exponential curve: 1, 2, 4, 8, 16, . . . 128, 256, and so forth. Reproduction starts; then principles and procedures are adapted, along with the design; finally, as an effective pattern establishes itself, growth accelerates (256, 512, 1024, 2048, etc.). Note that in the biological approach, while growth in quantity is obvious, what promotes that quantitative growth is quality that increasingly fits its local context. The critical dynamic here is *fitting the context*. It is hard to notice, and it is like the hyphen in SEED-SCALE: it is the process of connection.

This adaptation (i.e., a continually better fit) is what energizes the scaling up, and if the adaptation is ongoing, then sustainability enters in. Each unit retains autonomy, so it can reproduce nodes for extension, and with these multiple nodes, momentum increases, as there are multiple sites of growth. Extension does not go on forever. When the limits in the enabling environment are reached, growth plateaus. But its impact *can* be sustainable, as qualitative adjustments continue to allow a better fit. And as growth (in its biological sense) is understood, particularly its role in meshing better with its enabling environments, exponential curves of expansion can continue.

Healthy Relationships

Development is usually described in economic or mechanistic terms, and projects often follow business or engineering thinking. A situational

analysis is performed; then a plan, targets, and monitoring are done through logical frameworks (logframes). But is it accurate to structure social change as a building project? SEED-SCALE replies that it is not, and states that social change is more accurately described as a living organism.

A helpful parallel is that health was once assessed mainly in terms of disease. Now it is understood as the interaction of complex systems, including a person's nutritional status, spiritual state, stress levels, access to services, educational status, environmental influences, genetics, and the like. Promoting good health requires attention to influences on many levels: cell, organ, whole organism, family, community, nation, and, increasingly, the planet. Like excessive economic growth, excessive physical growth is not healthy: obesity is becoming a health hazard, and excessive growth in one part of an organism generally is cancerous and endangers the whole organism.

A second feature of healthy growth is that all organs adjust as the organism grows: legs, lungs, and various life processes. Growth is not a linear assembly of units. It is simultaneous, multiple, readjusting actively as the whole organism changes. Similarly, a healthy community is one that manages itself appropriately, according to its life stages. In doing so, it can survive for centuries by adjusting its parts. A grove of aspen trees, connected through the roots, is a single organism where individual trees grow and die but the grove lives across centuries, along with the mountain on which it is located. Aboveground, the aspen grove appears to be a cluster of freestanding trees, but beneath the ground, the unit is interconnected and interdependent, growing *from* its environment and adapting *to* it. A similar remarkable demonstration of enduring progress through the ages is the city of Rome, which has adjusted with flexibility over two and a half millennia and is consistently a world leader, while other cities have risen and fallen. Healthy biological growth re-creates the organism, preparing it for new life stages.

A third parallel between health and development is the precept that prevention is better than a cure. While a health focus increasingly views health care as services related to sickness, the reality is that health and sickness are opposites, and avoiding sickness is the best form of health care. At a simple level, the costs of treating individuals in hospitals are higher than the costs of removing the causes of disease through prevention in the community. Its parallel with social change is understanding

development as a set of proactive events, like those of prevention, viewing it as forward motion rather than as a way to fight off problems.

Tensegrity

Tensegrity is biology's form of building. It functions by balancing systems in a flexible state of equilibrium, rather than by mechanical construction. Consider the human body. Bones are loose: they are separated by cartilage and don't even touch one another. Weight presses on the skeleton's rigid bones, but the bones themselves are not self-supporting, as is the frame of a house. Because of tensegrity, bones in a living body are held in position by soft tissues under tension (muscles and tendons) and regulated by other soft tissues (circulatory and nervous systems). Bones push out, and skin and muscles pull in and hold the bones together, constantly adjusting the movement and shape of the body through balances in tension and compression.

You can experience this dynamic architecture by holding out your arm. Everything feels solid, but its considerable physical stability is not achieved by a rigid arm hammered into your shoulder, like a strut for the porch on your house. Your arm is rigid throughout its length because of the inward tension of muscles and tendons pulling in on a compressive outward force of the bones. Nothing is permanently locked in place; you can break the solidity of the extension simply by flexing your arm. This pattern at the organism level is repeated at the cellular level with microtubules and filaments, and, on a smaller scale, with molecular bodies.[8]

The concept of tensegrity, as an essential shaping force within nature, has many parallels for communities. This differs starkly from mechanical constructs or military thinking. First, the principle of balance allows forms to change shape and move. (Buildings are not designed to move—but biological organisms do, as does social change). Push on your skin, and accommodation follows throughout the underlying tissues. Societal flexibility is similar. Invade a society with an army, and, if the invasion is against the society as a whole rather than an army, the invasion eventually gets swallowed up. Throw money at a problem, and all too often both the funds and the program it pays for get used up, while society does not change—to the frustration of the donor. As societal systems change, the total societal fabric responds (not just the mayor or the budget). In this context, it is scarcely surprising that, although the centrally planned former Soviet Union could

build factories, hospitals, and schools throughout the nation (construction and distribution), that mode of societal assembly could not deliver complex social-development systems, which required flexibility. Command economies are rigid and prescriptively oriented, but the more complex natural world has solutions emerging from within and absorbing forces from without.

Second, biological growth occurs in locally specific patterns, in accordance with internal conditions. Development follows patterns that replicate simultaneously, interdependently, and differently, according to their organization, and are adjusted locally to the larger system. Designs keep nesting within larger ones (fractals), replicating the pattern at every scale. Consider the geometric formation of crystals, the dynamic balance of DNA's double helix, or the repeating classification patterns of life-forms that assemble on top of these fundamentals (species, genus, family, order, class, phylum, kingdom), all of which are flexing, yet staying in balance, allowing them to grow as they continually adapt to local realities.

This pattern of self-assembly is the dynamic of social development, coming together through internal dynamics rather than by an external plan. Order and organization seem to evolve almost spontaneously in the system, once it is working, growing here and there, as do biological patterns, rather than everything expanding at once. Self-assembly is not solely top-down, or only bottom-up; it is both. Fertilization also makes it outside-in. Self-assembly is formed by the enabling environment, which is locally based but shaped by the macrocosm of the socio-econo-biosphere.

A third characteristic of tensegrity is that a new structure emerges—the whole is not the same as its parts. (Here we are referencing concepts of emergence previously alluded to.) A human body is shaped by but differs from its skeleton and musculature. Furthermore, although components of tensegrity structures may be similar, both the visible appearance and internal life of each organism are unique. Likewise, each community's distinctive energy, local definition, and mobilization of resources do not simply arise from an externally designed blueprint; they have grown within the societal system, from which they continue to adapt, as defined by principles. And as these adjust, a new identity emerges, even though the parts remain the same.

A fourth feature of tensegrity is the feedback of information. Feedback here does not occur in discrete loops, as it does in conventional top-down management. Rather, it constantly flows through the system on multiple

levels. In a society, as within a person's body, pressure on one point in the dynamic of balance radiates through the organism to produce adaptive adjustments. Consider how fast news spreads in a small town. This type of feedback flow is central to the community process. Consider the tornado-warning system in the midwestern part of the United States, or the tsunami-warning system in Japan. Advance notice reaches the affected populace through a variety of means, enabling far more lives to be saved.

A fifth advantage of tensegrity is efficiency of construction. All components carry stress, but because the load is distributed, individual components do not need to be overbuilt. Since a cable balances outward stresses on a farmer's silo, on traditional Mongolian yurts, and on arches designed by the architect Eero Saarinen, walls in these constructs become supporting structures and require half the material mass used in conventional buildings. Similarly, communities require much smaller bureaucracies when organized on this principle of mutual dependency. Cost-savings to society follow when programs can reduce their components by half or more by sharing responsibility. Moreover, balancing responsibilities creates internal checks, facilitates nonhierarchical organization through the delegation of action and authority, and avoids traditional bottlenecks, as opposed to the increasingly common, redundant, top-down bureaucracies created to ensure accountability but which lack flexibility. Thus tensegrity systems, in addition to benefiting from an interdependency that creates more efficiency, operate at radically reduced costs.

Finally, the interdependence of tensegrity leads to accountability. Each component carries responsibilities, so accountability is present, but distributed. Failure to meet these responsibilities produces imbalance throughout the system. Accountability, however, is different from control. When social systems operate without tensegrity, development reassembles redundant bureaucracies that do worse things than just get in the way; they are diversionary, becoming worlds unto themselves rather than joining in with the real world. In tensegrity, each member trusts the other to do his or her job. When this does not occur, the void that is generated is immediately apparent. People who do not pay their bills are not eligible for credit; people who do not show up at scheduled times live with the consequences.

Tensegrity needs to be more widely utilized as the mindset for lifestyle designs. Instead, what is increasingly promoted are the compressive

architectural modes of plans, budgets, contracts, and deliverables. Those have their place. But society is not a construction project—it is a living, hypercomplex organism. Communities do not need to become bureaucratic. Rather, bureaucracies need to become sensitive to the interdependencies of communities and learn to use these interdependencies to generate efficiency, flexibility, and speed in the delivery of services.

All four of these approaches—blueprint, explosion, additive, and biological—have their uses in development, depending on particular needs. During a flood or an epidemic, the explosion approach provides rapid mobilization and a narrowly targeted intervention. For pervasive but specific societal needs, such as building a communications infrastructure, a blueprint approach is probably the best response. For a focused societal need requiring a new model, turning multiple players loose to probe for solutions in a locale-specific context, the additive approach is probably the best strategy. In our view, however, the biological approach has brought the longest-lasting benefits of social change into entire regions. It is, moreover, the least expensive, because of its focus on growth using local resources. The biological approach not only evolves solutions adapted to cultural, economic, and ecological realities, but also supports the ongoing evolution of those solutions, so they expand rapidly. It does, however, require a significant change in behavior—relinquishing control—which is atypical for most officials, experts, and donors. They need to let go of the belief that they know the answers, and instead intentionally enable community creativity, so people can rise to their new opportunities in a continual, local assembly process.

4

Synopsis of SEED-SCALE

SEED (Self-Evaluation for Effective Decision-making) + SCALE (System for Communities to Adapt Learning and Expand) = SEED-SCALE

The conversations that ultimately grew into this book began in the Punjab of northern India during the 1950s. Then, this father-and-son team would drive each week through high *sarkanda* grass that extended as far as our eyes could see, headed to isolated villages to run medical clinics. The father drove the jeep, and the ten-year-old son rode proudly by his side. A generation earlier, the father had been the son, riding in an ox-cart beside his doctor parents 200 miles (320 kilometers) to the east, in the foothills of the Himalaya, bouncing over rutted jungle tracks as that earlier generation headed out to run clinics.

Each year during our drives, we became more aware that the animals were getting fewer; human progress was causing the *sarkanda* to disappear. During the day we worked in a village clinic where the father, Carl, would see patients, many of whom had waited hours for care. Thump, thump, ahhhh, where does it hurt? After the diagnosis, the patients walked to the table where young Danny sat. He read his father's gnarly handwriting, counted the correct number of pills from the right bottle, folded these inside a paper, and handed them to the patients, who then returned to their scattered fields among the high grasses.

A significant question, though, began to arise in our minds: does giving clinical health services to sick folks really help them? As we dispensed medicines each day, we knew the patients would soon come back again, sick once more. There were also questions of white folks giving to poor

brown folks, questions of sustainability, questions of what was happening to traditional systems in the villages. But, as the same people kept returning, there was the simpler, overriding question of whether giving services was improving lives. The same mother, appearing yet one more time, sometimes bringing the same baby, or another child. Free medicines and talking to her in helpful ways seemed to make her come back more often. Now we had more questions. What is the role of education, or of dependency? What is the role of friendship? What is the role of real help? A sick child gets better for a month or so, but is her family's life getting better?

After the last patient was seen at each clinic, we shut the door and turned to our search for food, driving along with evening casting a red glow over the grass, out along the Sutlej River. It was a good time to talk—father to son and son to father—about what we were doing and what was happening around us. Questions from that period are still being discussed between father and son more than a half century later, a century after that father's talking to his father and mother during bouncing rides in the oxcart-delivery approach to primary care. Arguably, these questions that go across generations should also be asked around the world: *do the fundamental assumptions and systems we use today help make life better*? The evidence shows that delivering services frequently impedes peoples' abilities to own their futures. Helping also frequently creates dependency. That prompts the question, what forms of helping eventually result in controlling peoples' lives, so they become dependent rather than empowered?

In the pre–Green Revolution Punjab, the land near the river was laced with waterways, nearly dried up for months each year except during the monsoon; pocketed in the mud were waterholes where wild boar, blue antelope, foxes, and occasionally leopards came. We scanned especially for black buck, which sometimes ran in herds of hundreds through the high grass. Whichever animal we shot, black buck or blue antelope or wild boar, was meat to be shared with our neighbors, who could not afford chickens or goats from the bazaars.

Today the black buck is an endangered animal species, and the savannas we once drove through are now endless wheat fields, transformed into human food sources by the Green Revolution. Like the United States, where its prairies and herds of bison have also disappeared, India has

sacrificed its natural environment to the goal of self-sufficiency in food production. India's population, like America's, has risen enormously, but what has grown even more in both countries is the expectations of its people.

Across generations, we have asked ourselves, how could we make development more just and lasting? Today our family's transgenerational quest to improve the lives of people has extended to a fourth tier, the children of that then ten-year-old son, and a full century has passed. We know that we are tiny figures in a vast cavalcade who have discussed these issues, extending back to the dawn of our species. The particular challenge may once have been how to make a fire and keep warm, and to go to scale by finding out how to carry that fire to another community in our tribe, but although the technical challenges are now hugely different, the process remains the same: to help and expand what enhances the quality of our lives, to kindle flickering success into more and larger fires to warm more people.

One conclusion from these discussions—a conclusion that leads to the dedication for this book, a conclusion affirmed time and again in the evidence found in the chapters that follow—is *build from success, and accent the positive*. Find the seeds that exist in every community, the hope for a better tomorrow that is keeping that community alive. Grow those seeds to scale—and recognize that the most helpful scaling-up growth does not result from doing the same thing again and again, but results from a rising quality of life that draws in more participants. Shaping our lives toward the better comes from a feedback loop of peoples' aspirations, prompting them to actions; then these actions spur them toward new aspirations (figure 4.1). Aspirations and actions are constantly evolving, with new definitions. We term this the revolution of rising aspirations.

Dynamics within aspirations are complex—even one community's aspirations differ daily, and aspirations among communities are not always the same. It is unlikely that experts and governments will be able to ascertain such flux. Similarly, it is impossible to determine what actions will meet ever-changing aspirations. It is hard even to know what exists within communities and can be worked with. But aspirational dynamics are always there, and they drive actions. Communities have vast latent resources, and it is so easy to believe that they are "poor" (which they can be by external definitions but may not be in their potential):

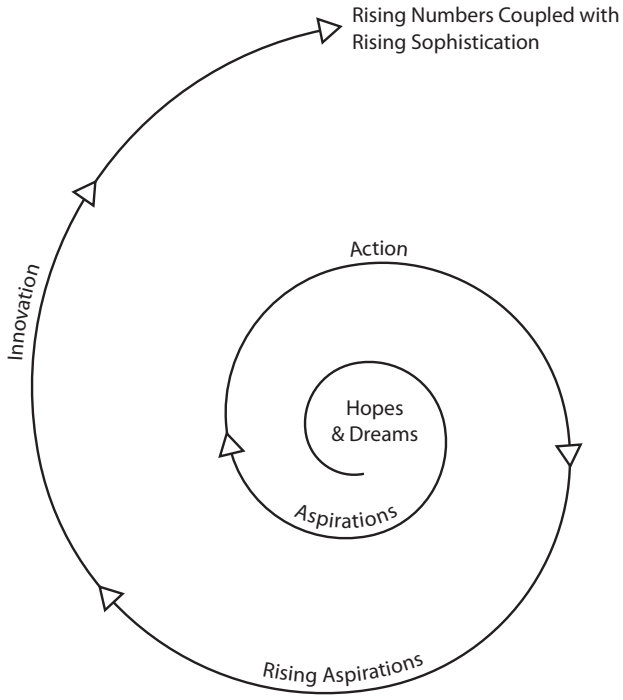

Figure 4.1. The revolution of rising aspirations: a positive feedback loop

- SEED-SCALE provides a universal process to engage diversity.
- Being process based, SEED-SCALE provides operating principles that then can be applied across a variety of situations.
- The focus is on balancing relationships in situations, not on the community's constituents.

SEED-SCALE is an acronym (Self-Evaluation for Effective Decision-making, as well as Systems for Communities to Adapt Learning and Expand). Additionally, the term SCALE possesses three other acronyms: SCALE One, SCALE Squared, and SCALE Cubed. SCALE One (Stimulating Community Awareness, Learning, and Energy) refers to quantitative growth. SCALE Squared (Self-Help Centers for Action, Learning, and Experimentation) indicates qualitative growth. SCALE Cubed (Synthesis of Collaboration, Adaptive Learning, and Extension) is system-wide growth that uses what is there. (We have intentionally made the presentation

complex, for that is a precise and truthful way to describe the challenges of our changing lives.)

But we hasten to deflect attention away from the acronyms per se. The language of social change is very technical, but its objective is simple: improving life. Acronyms within acronyms are not intended to mimic today's technical addiction for the jargon of cryptic letters. Our point is to create a language for complexity, a way to show the reality of the socio-econo-biosphere. Change emerges out of a circling within circles of our lives, and what SEED-SCALE offers is a means to direct that. The human endeavor is the most complex dynamic known, as it embraces all that we know and create—feedback loops within feedback loops, always repositioning locally and now, in the modern age, from global forces. A language is needed to explain this: one person's perspective will always differ from another's, one person's aspirations will usually not be the same as another's, and different actions are possible. Moreover, all of these change for a person across time, not to mention changes that occur between different individuals.

SEED-SCALE synthesizes a number of schools of thought that regard enabling human capacity as the optimal method of social change. Broadly gathered together, these schools of thought are termed *empowerment*. The greatest success in the utilization of empowerment-based social change was by Mahatma Gandhi, in a movement needing little money or technology, where human energies liberated a host of freedoms, far beyond the commonly discussed one of colonialism versus political freedom. Gandhi's empowerment was a movement that included progress in the areas of poverty, caste, gender, health, and community unification.[1] More recently, contributions to this larger theory of change came from Robert Chambers and the global team of PRA workers (first an acronym for Participatory Rural Appraisal, now Participatory Reflection and Action).[2] Also important are ABCD (Asset-Based Community Development), appreciative inquiry, and the field known as positive deviance.[3]

In parallel to this people-based framing of empowerment is empowerment by eliminating social problems, especially poverty, an understanding now documented by the World Bank.[4] Even the flaunted Millennium Development Goals of the UN Development Programme grounded the promotion of social change on financially driven assistance, with the objective of stimulating empowered, holistically advancing communities.[5]

The approach presented by SEED-SCALE differs from the above, arguing that within the complexity of the socio-econo-biosphere—since that is what drives change—the whole of its dynamics must be embraced (not just the financial, not just the positive, not just political reality), and all must be responded to at the most local level. Response is multidimensional and always situation- and time-specific. The lives that people lead do not follow a systematic structure. Lives fold back, start, get cut off, re-form; growth is recursive. It is false to suggest that building a better future can be organized like, say, building a factory (though many development documents argue this way). While it is now acceptable to leave the hubris of omniscient design and argue for an approach that fosters community life, the underlying vocabulary in most thinking remains fixed on one-dynamic solutions (educate girls, improve health, create a stable government, enlarge the economy).

In contrast, the approach being advocated in SEED-SCALE is that societal growth operates from the principles in complex systems. SEED-SCALE offers a standardized set of principles, with the belief that these nest within a culture's values regarding religion and political life. Our thesis is that people, by gathering together around shared, life-advancing principles, can pull together their energies and resources. The principles then drive change into their lives by engaging the organizations in society.

SEED generates the beginning. SCALE defines the product (i.e., what grows). A hyphen, the tiny connection between SEED and SCALE, is all-important; it can be viewed as a community-specific DNA that guides the communities involved, showing them how they can evolve to their comparative advantages. Although the terminology is new, the case studies that follow demonstrate that this process has been used for generations.

SEED-SCALE thus offers a complementary—not a contrary—approach to development, adding to the commonly promoted ones: neoliberal economic development, which emphasizes unshackling the market; religious fundamentalism, which advocates a rising quality of life in the hereafter by following the disciplines of the today; socialism, which assumes that the disenfranchised advance through the equitable benevolence of the state; or even dictatorship, which argues that good-enabling actions will follow from powerful leaders. All such theories of change, including SEED-SCALE, encompass the features of a social theory (social analysis, and

then action, to create an aspired societal definition). But SEED-SCALE is a whole theory, distinctive because it assesses and advances local potential, identifies relevant learning and opportunities to be brought in, and uses this base as a means of engaging what exists locally, as well as revising actions as they are taken, so they become more locally effective.

More detail on how to implement this theory of social change is presented in the two appendices to this volume. Additional material is found on the website www.seed-scale.org. Readers are invited to contribute to the continued growth in understanding appearing on this website. Also, a discussion of this approach is found in our parallel volume, *Empowerment on an Unstable Planet: From Seeds of Human Energy to a Scale of Global Change*. What we present here is a synopsis of SEED-SCALE.

Four Principles to Advance Communities

Principle in SEED-SCALE	*Opposite of SEED-SCALE*
Build from success	Fix failures or address needs
Form three-way partnerships	Exercise control by one (or two) partners
Decide on actions using evidence	Decide on actions using power, money, or opinions
Changing behavior is the goal	Delivering project elements is the goal

Building from success is the starting point, and the three other principles are needed for growth in a community whose members are advancing together. The second principle, *three-way partnerships*, creates the team. The third, *evidence-based decision-making*, guides the process. And the fourth, *behavior change*, is the endpoint, one that is accessible to all (figure 4.2).

Principle One: Building from Success

Community is defined as a group of people who have something in common and have the potential to act together. Most communities have successes on any given day—life may feel like unending travail, but if a group has made it through a day, they probably have created successes. The next day the objective is to make their successes more effective and efficient by adapting ideas and achieving new results. As people, this is what we do. To what extent do we own and direct this part of our daily reality?

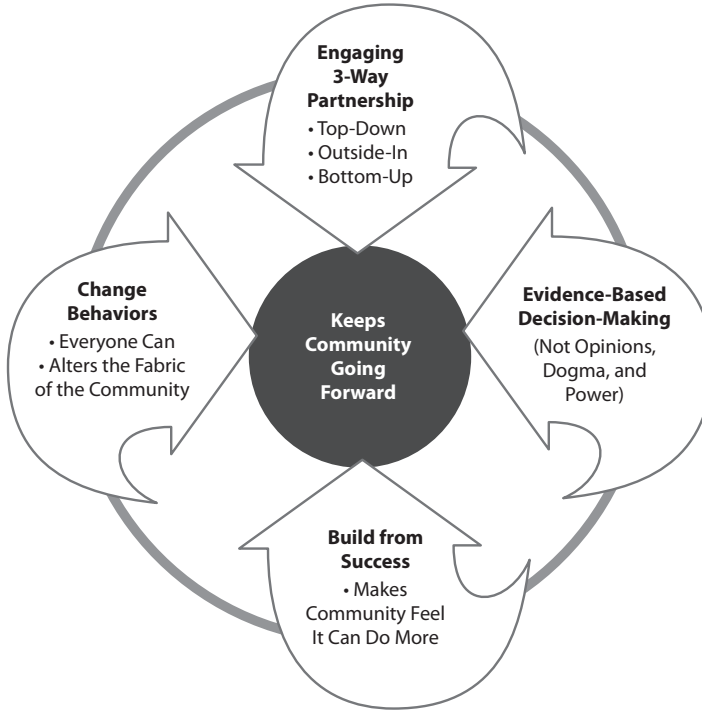

Figure 4.2. Four principles to foster community growth

Or do we let others own our actions? When we build from our successes, we increasingly are in control of the direction in which we are going.

Consider our smallest community, the family, and the process of parenting. A growing child learns by stepping out and believing in his or her capacity to engage the world, but stepping out takes confidence. Individuals skeptical about their potential may endure, or accommodate, but they will not thrive. Thriving requires engaging opportunities. Privileged starting points do not matter as much as conviction. Find a beginning in a strength to build from, then point to a vision shared in the community, and the community will gather together in action. A conviction that the common future will be better drives this process.

But starting with building from success is not normal. Customarily, communities are advised to conduct a needs analysis. Doing that focuses on what is broken, or on the incapacities in a group. It seldom makes a

community feel strong; at best it can bring the community together to address the need. It commonly moves the community toward depending on outside help. It also might start the community down the path of letting go of its decision-making. But what if there is no group that will help? What can the community do by itself, with what it has? Building from success answers the question by providing both a starting point and a resource base.

This does not suggest that there are no needs, or that addressing them is not important. The objective here is to launch the process of change. By beginning with positive change, needs are usually engaged automatically, in a constructive way. But there is a danger in this: the strong parts grow, and the weaker parts are neglected. Inequity can rise. The community can become divided.

In building from success, the objective is to get as much of the community as possible to own this forward, success-based direction. For instance, when a local sports team wins, energies rise that bring out community relationships on their many levels. In SEED-SCALE, a *local coordinating committee* (sometimes also called an action group) leads this process. Such groups have a fluid membership, repeatedly redefining themselves to represent the whole and reflect their shifting priorities.

Principle Two: Three-Way Partnerships

To foster bottom-up growth, engage top-down and outside-in partners. Bottom-up community energy seldom mobilizes by itself. Bottom-up action occurs everywhere, even within a top-down environment (cultural values, governmental policies, financial frameworks, geographic location, and climate); this is the local reality that shapes peoples' lives. The challenge is to learn how to use what is there already.

Too frequently, efforts identify the top-down partners as the problem (a sure way to make them turn into a problem.) Whether or not a community likes the top-down participants, the reality is that it must engage these top-down forces (unless it decides to start a revolution). This is what can facilitate cooperation among factions and channel resources. Many top-down options are possible. If a community does not like one top-down actor (e.g., the government), there are others: different governmental agencies, religions, civil-society organizations, businesses, and the international community. If a top-down partner at the local level is being difficult, it is

possible to engage other levels of that partner: regional, national, or international. Balance one with the others.

Outside-in partners bring ideas, technologies, seed funding, and training. They introduce something that was not there before, usually by training, by example, or by gifting. Outside-in contributions grow capacity, and they can also change relationships, either among the bottom-up partners or between the bottom-up and the top-down ones. They can help monitor change, as they usually bring a more objective perspective. They come under many names: academics, businesses, nongovernmental organizations, and—perhaps the most significant—individuals from the community who have moved away.[6] Sometimes communities try to use the outside-in in place of the top-down. The danger then is allegiance to an outside group. This may introduce resentment from the top-down, or it may launch dependency on the outside-in. Outside-in contributions, because they almost always move on, are most effective when they are used to change community dynamics or to innovate, but not to sustain.

The bottom-up—the community, in all its actors—is the enduring base. The bottom-up is enabled by the top-down (the values, policies, and financial systems). An empowered community is able to move the top-down into action, but often the outside-in must be enticed to participate. Top-down forces, even totalitarian ones, are surprisingly sensitive to empowered bottom-up communities, especially if they are nonconfrontational. Communities, as they learn to work across top-down and outside-in vectors, will incrementally alter these environments (figure 4.3).

A three-way partnership does not require a charismatic leader. Such leaders are hard to find, and even harder to replace. They may, in fact, become a problem, as often they start out being helpful and then stray as they gain power. Further, in complex community dynamics, a single leader seldom brings an adequate diversity of perspectives. But a three-way partnership can avoid these pitfalls. It can use a charismatic leader if one is present, but it can push back if such an individual takes control. There are exceptions to this advice, though, as a single leader is more efficient in certain situations, such as emergencies, construction projects, professional accreditation, and whenever there is focused work.

While organizational charts usually list the participants by position, we list the three partners as functions: bottom-up, top-down, and outside-in. Within each of these three functions are many partners des-

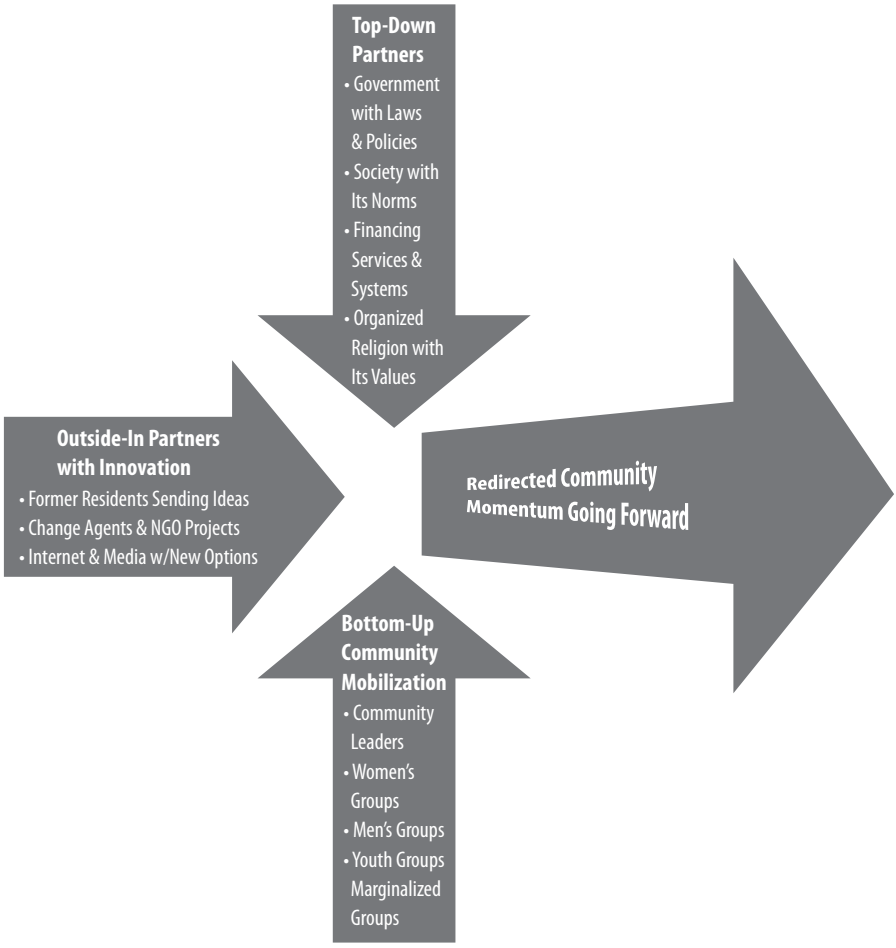
Top-Down Partners
• Government with Laws & Policies
• Society with Its Norms
• Financing Services & Systems
• Organized Religion with Its Values
Outside-In Partners with Innovation
• Former Residents Sending Ideas
• Change Agents & NGO Projects
• Internet & Media w/New Options
Redirected Community Momentum Going Forward
Bottom-Up Community Mobilization
• Community Leaders
• Women's Groups
• Men's Groups
• Youth Groups
Marginalized Groups

Figure 4.3. Three-way partnership

ignated by position. In the top-down are local, regional, and national governments, as well as international agencies. The same spread from local to international exists for businesses, cultural groups, and religious bodies. Communities seldom utilize this flexibility. The outside-in has an even wider range: nonprofit organizations; academic institutions; businesses; civil-society organizations; trade unions; the media, in its many shapes; former members who have moved away; and, nowadays, the potential of social networks. The third partner, the bottom-up, also

seldom utilizes its breadth, seemingly mainly to exclude certain community segments.

Principle Three: Evidence-Based Decision-Making

Action always is particular to place and time. What is striking, though, is how often action is dictated by decisions distant to that place, and how often it is based on old evidence. Evidence-based decision-making, the third SEED-SCALE principle, allows

- citations to be based in reality (rather than opinions),
- actions to adjust with circumstances (rather than holding to directives), and
- facts to bridge factions, bringing the community together.

Social change's objective is to move community life forward, and accuracy is required to determine in what direction and at what speed. This seems obvious, but decisions are almost always made from opinions that are influenced by who talks most convincingly, or is most powerful, or has money. It may seem as though experts will be the best guides, but experts have a way of using evidence that is distant from a particular locale (or is out of date) in making decisions.[7] Experts have a vital role, but they do not always know the local situation.

In contrast, SEED-SCALE seeks to connect to existing evidence bases or regional circumstances and then adds specially gathered evidence as needed. The first phase of evidence gathering needs to be so simple that it wins a community's commitment to using evidence. Without gaining commitment, the evidence will not convince those who need to use it. It is also useful to compare the past with the present, as well as make comparisons between communities. Evidence is frequently narrowly viewed as being objective and scientific, but it becomes stronger when synthesized with indigenous wisdom (i.e. locally grounded). One easy-to-use evidentiary tool is photography (others are discussed in the appendices). Guidance exists for how to employ it in scientific documentation; moreover, when photographs of a scene are repeated across time, they produce concrete evidence of change.

Principle Four: Behavior Change

People can start with the principles of building on successes, coming together in partnerships, and agreeing on evidence, but for lasting

results, they must also change behaviors. A community can start behavior changes simply, by gaining new skills. To open up space for that, those in positions of power—community leaders, officials, or experts—usually must learn to share power. This is difficult, but ultimately it is freeing for the individual in power, as well as empowering for others. As community enthusiasm becomes contagious, a feedback loop sets out new expectations and standards. Then, as one change supports another, social pressure builds, and those who do not cooperate may be bypassed or even overrun by the momentum. (It may seem that calling for behavior change is about as practical as proposing a religious awakening.) Leaders are reluctant to modify their control. Behaviors are embedded in community norms. But behaviors do change when individuals see that change is in their self-interest.

In its ambitious goal to change behaviors, SEED-SCALE brings a way to iteratively move the power balance toward collaboration. This is where using action groups or local coordinating committees (small groups whose members support each other to change behaviors) is effective. The small groups are powerful; their power rests in their speaking for collective self-interest. Leaders have a hard time challenging a group that gathers together to improve local life and speaks for the whole. The process may grow quickly, but more often permeates gradually.

One large, recent behavior change is the worldwide shift in family-planning practices. During the early 1960s, changing peoples' sexual behavior was among the tougher challenges of civil society, since such behavior is genetically grounded in the DNA of all animals, supported by religious dogma, and protected by strict privacy norms. It is hard to imagine any behavior that is more difficult to change. But during the past forty years, a worldwide change has occurred. People realized that smaller families do better, and that awareness of one's quality of life (the core quality/quantity feedback loop that drives SCALE) prompted a rise in the number of people participating in family planning.

The Three Dimensions of SCALE

The four scaling-up approaches—additive, blueprint, explosion, and biological (chapter 3)—are driven by two dynamics: energies inside a community, or outside resources. Most programs intending to scale up propose doing so by sending in money to fund the process and people to

lead the work. SCALE represents a means of scaling up that is led by internal dynamics utilizing *both* internal and external resources.

In contrast with other modes of scaling up, with SCALE, community energy can neither be bought nor coerced. In SCALE, outsiders and their resources help, but the momentum for change is led from inside. Government provides the enabling environment, which can differ widely from place to place and can appear to be working against positive change. In SCALE, what is important is that communities utilize government policies and finances as the enabling context. Experts assist in this process, finding how to turn that context to maximum advantage, with ongoing technical breakthroughs and education, but they do not direct the actual work. In such a locally led partnership, monetary inputs, technology, training, incentives, and the use of regulations expand the possibilities.

Those concerned with international development have long spoken of times when social change takes off: an almost magical, society-encompassing change commences and seems to grow on its own.[8] A community that had been considered backward is now termed "developed," and society is transformed. This perception of a primitive-to-modern progression lingers in peoples' minds, but it is not accurate. Most professional literature addressing this process is also incomplete, as it usually overlooks the whole and is written from the viewpoint of a professional discipline: health, education, transportation. Taking off indeed happens, but it is the whole society that does so, and the process is complicated.

SEED-SCALE gives a framework that reveals this complex process: it connects large, qualitative change with increased coverage. SCALE refers not to the outcome, but to the process. And the process is the positive loop—the revolution of rising aspirations (page 66)—where growth in size feeds growth in the quality of life. Specifically, as numbers for some particular positive dynamic increase, those larger numbers stimulate rising desires for a quality of life that goes beyond the impact that was first achieved. This rising, broader quality of life then draws in greater numbers, and these lift that quality further. There is a spark of aspiration at its core: peoples' dreams and hopes. Fulfilling these attracts more people, and in their fulfillment they develop new aspirations, so the cycle spirals on. Life consists of changes, because dynamics and relationships inside communities are changing; energies are refocusing, driven

by aspirations, and, cycle upon cycle, actions turn aspirations into reality.

The change that is under way is not repetitive. As each cycle rotates, the quality of life is altering. New life-goals unfold—for example, people move from wanting better health, to wanting better jobs, to wanting services for their children, to wanting more time off from work. A rising quality of life brings in more people, with their various wants, and all of this is always shifting. Change expands through clusters of communities, or even within a region or a nation.

Going to scale is the community's voyage into the complexity of life. Local actions are being shaped by global forces, and local realities are influencing global dynamics. SEED-SCALE points out that this process unfolds along three dimensions, interacting in locally specific ways throughout the socio-econo-biosphere:

- *SCALE One (Stimulating Community Awareness, Learning, and Energy) learns from and promotes successful community projects*. This is a numerical or quantitative expansion. It is the process that is usually meant by the term SCALE. In the Green Revolution, this was a farmer getting new seeds and fertilizer and then using them; in the Child Survival Revolution, it was mothers immunizing their children. But this numerical growth is just one dimension of SCALE.
- *SCALE Squared (Self-Help Centers for Action Learning and Experimentation) transforms demonstration projects into learning centers for others*. This is qualitative expansion, where experiments extend learning to improve the quality of life. In the Green Revolution, this was agricultural demonstration centers that were improving whole packages of interventions and showing that adjusted package to farmers, who were then sending their children to school, and mothers were breaking out of traditional roles because they were not caring for children full time. In the Child Survival Revolution, it was connecting immunizations with nutrition, then with breastfeeding, and then with family planning to raise the quality of family life.
- *SCALE Cubed (Systems for Collaboration, Adaptive Learning, and Extension) promotes systematic extension throughout regions and societies*. This is changing the enabling environment—the systems—to increase

> cooperation among members, augment comprehension among those members, and promote new approaches through the whole society. Values, policies, and financing are the variables that can be used, and adjusting these causes both quantity and quality to change.

When applied to all three dimensions, the SCALE acronym stands for System for Communities to Adapt Learning and Expand. This multilevel acronym, which probably appears both overly ornate and reductionist in the academic world, provides a useful descriptive formula for the complexity of the process when it is taught at the field level, and it transfers into other languages.

The many SEED-SCALE acronym definitions reinforce an important point: development means different things to different people at different times. One person's development is not the next person's, and the labeling we use shows that development is complex. Economic prosperity is not development. If it was, those who center change in their lives on religious priorities will feel rejected. Similarly, those who see economic growth as undermining nature's fabric will feel they have no way to advance their concerns. The SEED-SCALE nomenclature gives each experience a situation-specific voice.

Sometimes SCALE One comes first, especially when the change is spontaneous. One or more communities make changes, and these spread to other neighborhoods. At other times, SCALE Squared begins the process, particularly when experts start demonstrations for training people in ways to effect a change, and then promote the extension of that change. Commonly, SCALE Cubed starts the sequence, with the government putting policies and financing in place; then innovation takes off in multiple places, to be refined through adaptation and training.

SCALE One is the growth of a particular change. SCALE One growth can occur because the community has fostered the project, or it can come from an outside stimulus and outside resources. A nongovernmental organization may have been extending a project, or the community could have done so. SCALE One does not require growth to be driven by the SEED-SCALE framework of emphasizing internal energies and resources; often SCALE One results because a change uses external resources. Growth of an activity, whether in size or in numbers, is occurring; the type of activity or its cause is not what matters.

SCALE Squared changes the activity; it promotes quality. People learn new ways of doing things through innovation, technology, and experimentation. This dimension has two parallel functions: one is action learning, and the second is experimentation. Action learning is seeing and implementing ideas. Experimentation is their adaptation and adoption by communities in a region. Such change has traditionally occurred by happenstance—although it is still SCALE Squared—but when it is formalized in a SCALE Squared center, it is a place to which people go to learn and experiment. This learning exchange is now frequently presented on YouTube and the Internet and, when it is formalized in such venues, people are encouraged to ask questions and take part in workshops or training. What follows is seldom direct copying by the people who participate in this exchange; rather, it is tinkering with ideas and adjusting components to fit resources. With SCALE Squared, the result is that we feel our lives are getting better (i.e., qualitative growth).

SCALE Cubed is the enabling environment, and it is built on three systems: ones that create quantitative growth (SCALE One), ones that promote qualitative change (SCALE Squared), and ones that link synergistic networks. These systems utilize professional-role reallocations, training, policy changes, and financial incentives. They focus on readjusting values, responding to local as well as global influences, managing resource streams, and updating policies and programs. When well managed, the three SCALE Cubed systems enable change to unfold exponentially.

1. *Systems for collaboration*. Synergy is promoted among services. Scaling optimizes as a range of people collaborate: communities, officials, and experts. It also utilizes a range of social factors: policies, regulations, administrative infrastructure, financing, information systems, ownership, transportation, and marketing. Seed grants can help leverage such collaboration. Communication enhances synergy, and the range of communication options is vast: special classes, regional events, social media, competitions, concerts, workshops, and festivals. The enabling context becomes more powerful when utilized collaboratively.

2. *Systems for adaptive learning*. Development is a process, and the system for adaptive learning (SCALE Squared) keeps development going. For that to happen, momentum must continually adapt, because the larger world is always reshaping itself. Traditionally, this was a hit-or-miss process for communities; a community might grab a good initiative

one time but not be so lucky the next. It was hard to tell whether an option was proven, and even harder to find it adapted to a local context. Adaptive learning can now be systemized through visits and workshops at a SCALE Squared center, to expose people to new ideas and skills. The process, though, is much more effective when it gets local, regional, or even national support.

3. *Systems for extension*. Actions (SCALE One) may extend spontaneously, but a system exists when a central authority uses money and staff for this extension. Ideas and values are formally propagated. Financing systems are put in place. Supplies are delivered and accounted for. This extension can occur through formalized, coordinated channels (such as the above), or it can occur simply by promoting an idea, training people, and then drawing the resources for its expansion from nongovernmental groups, religion, businesses, and the media. It can happen using internal energies and resources, or it can be funded by a developmental service.

In SCALE Cubed, three changes unfold. First, policies change, and, with them, laws, regulations, and administrative infrastructures. These affect trade, transportation, marketing assistance, information access, many types of training, and ownership of common resources. Additionally, administrative frameworks encourage connections across services, such as health, agriculture, education, public affairs, and the like. Synergies result among these. Continual retraining keeps this process abreast of changes in the larger society and able to take advantage of an unfolding opportunity. New relationships emerge from preexisting parts.

Each dimension requires different leadership skills. Initiative and capacity are both needed to spot and incubate opportunities. Entrepreneurs take the lead here, and they make SCALE One extensions occur. SCALE Squared involves more-practical educational skills and deliberate experimental creativity. Hands-on academic types are needed. SCALE Cubed requires managers and politicians, who facilitate collaboration among others. Good bureaucrats are a treasure here. Each dimension has roles for everyone—but the role of each partner changes.

Five Criteria to Realign Action

Five criteria help monitor whether change is positive or potentially problematic. The third SEED-SCALE principle (evidence-based decision-

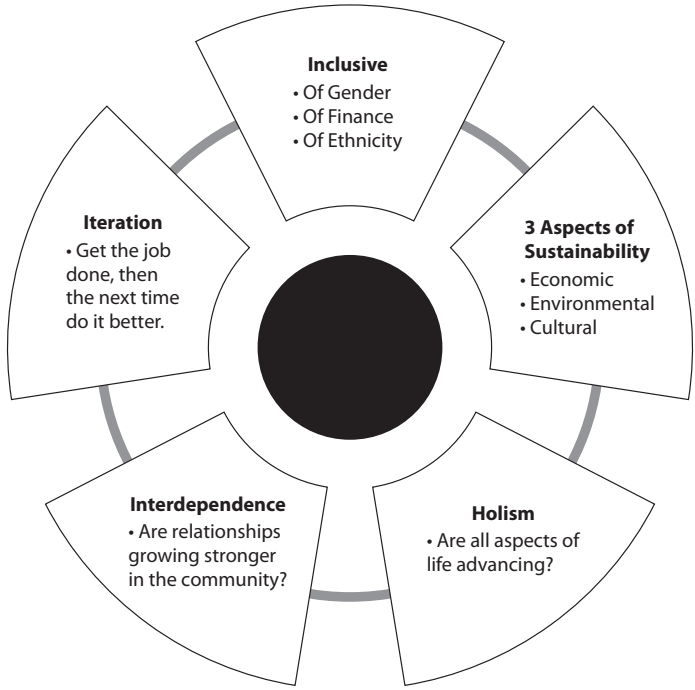

Figure 4.4. Five criteria to assess community progress

making) uses standardized criteria. Without measurable criteria, people in communities are making biased evaluations about progress. But with uniform criteria, comparisons across regions are possible. The definition of a criterion may change regionally—based on different values in, say, Canada, China, the Czech Republic, or Tchad—but with criteria that are consistent, each community can monitor its change in accord with its own definitions (figure 4.4).

1. *Inclusiveness in equity, gender, and ethnicity.* Too often certain groups, particularly those with privilege, seize advantages, and the less educated, the poor, and ethnic and religious minorities fall further behind. Consequently, we advance inclusiveness as a goal for more than moral reasons. When certain organs are diseased, a person's whole body is at risk; in social change, paying attention to all members of the society is in everyone's interest. Inclusiveness has been conclusively demonstrated to correlate positively with physical health, mental health, levels of social

violence, life expectancy, happiness, and almost all indicators of prosperity, with these correlations holding true nationally (e.g., between states in the United States) and across countries.[9]

But inclusiveness does not evolve on its own, as discrimination patterns are deeply entrenched in most societies. To mitigate this pattern, assessing inclusiveness provides a societal reminder: with a rising tide, those who have bigger boats should not swamp those whose boats are smaller and have leaks. Pressure from the common voice of government, religion, or the media is needed to convince elites that their futures will improve when all benefit.[10]

2. *Sustainability in values, environment, and economics*. Communities want positive change to endure, so three aspects need to be monitored: community values, the natural environment, and an economic base. Understanding all three is essential. Tracking cultural, environmental, and economic sustainability will highlight occasions when development is creating short-term gains but not lasting ones. Even if two of these factors are under control and only one is uncontrolled, the community is still at risk.[11]

Development will always consume resources. Sustainability is not a perpetual-motion machine. Technology, training, and invention can put pressure on development to be more efficient, but they never can make it totally efficient. So each community, looking at the opportunities that are before it, must ask if the gains are worth the costs, and assess those costs in terms of values, the natural environment, and financing.

3. *Interdependence—not independence or dependence*. Development's antithesis is dependency. Momentum toward a just and lasting life will enhance interdependence within and between communities, which reduces their vulnerability to the victimization that so often accompanies dependency. Interdependency is the goal, not independence. In interdependent relationships, networks strengthen in a complex world.

Donors seeking results may offer to pay the costs of some service. Government officials seeking votes may promise services. Such assistance may appear to improve conditions, but it actually may not. Long-term sustainability needs to be measured across values, economics, and the environment. Resources will be needed, but they will be truly helpful only if links into as well as out of the community are strengthened.

4. *Holism*. Social endeavors typically view people as patients, students, bus riders, consumers, or statistics. But humans are not one-

dimensional. People are beings with multiple needs and changing aspirations. A feature typically overlooked in social change is that when progress comes to one sector, peoples' aspirations shift: a doctor no longer is so important when a person ceases being sick, and the recovered patient perhaps now wants entertainment. The need is to track the whole and identify the always-developing gaps. Action that is separated into sectors—such as security, health, education, and transportation—supports professionals, but it ignores a community's multifaceted aspect.

5. *Iteration (application, improvement, and doing it again).* In life it is nigh impossible to get an action right the first time—or any time. But it is always possible to make life better. Development matures through continual adjustments. An idea is attempted; on the next try its implementation gets better; in a third trial, outcomes become more useful. Iterative growth is not simply repeating a job. In situation- and time-specific change, the tasks adjust with each trial. The whole is important, but to keep everything coordinated, iterative assessment continually makes adjustments as actions improve.

When all five criteria are monitored, development comes alive. Getting that energy ignited allows change to blaze forth. Partnerships, evidence, and changed behavior then fit together. Finally, by using the cycle of seven tasks, those possibilities can be acted upon.

The Cycle of Seven Tasks to Craft the Future

Biology does not operate according to workplans. Planning is an engineering construct. People live in annual cycles, such as an agricultural, fiscal, or academic year. Moving development out of engineering and budget documents and into ways of life is long overdue. Business may flourish with linear production, but life moves in cycles.

Crops grow through a cycle that is followed the world around: prepare the soil, plant the field, irrigate for germination, nurture its production, protect it from invasion, and then harvest. Social change apparently also follows a cycle. We first found this cyclical approach to be globally applicable in UNICEF, with the triple-A process of assessment, analysis, and action. The three larger steps of triple A became more specific as the global SEED-SCALE task forces crafted the seven tasks. Twenty years of field trials

for the seven-task cycle have shown it to work across cultures and economic circumstances, a universal process to evolve site-specific solutions for building capacity (assessment), choosing direction (analysis), and getting the desired results (action).

Building Capacity: Three People-Nurturing Tasks

1. *Evolve leadership.* Leadership is likely to be more effective if it is not limited to one person. A coordinating committee gathers the community together to plan action using local data, gets cooperation from both long-standing and recent factions, and points to changed behaviors. Once communities feel they are reaching commonality, action strengthens. The initial committee is reconstituted as people rotate off and others fill their places. So, the first task is to *create a local coordinating committee* to supervise the other six tasks.

2. *Determine what has worked already.* The community's desired future will seem more achievable if it grows out of past successes. Action draws on that experience and confidence. People are continuing processes they know and, being familiar with these processes, have the skills to start improving. A second task is to *find local successes*.

3. *Learn from others; don't try to originate action alone*. Encourage people to visit other projects and learn from them. When people see an idea and learn what is involved in it, they are more likely to try and experiment with it. Onsite visits are one way to gain knowledge, but with the Internet, cross-community learning is easier, faster, and less expensive. A third task is to *learn from the experiences of others*.

Choosing Direction: Two Evidence-Based Tasks

Every community has the opportunity to decide its direction (and is doing so at some level already). Growth occurs by moving from what the community has (SEED) toward what is desired (SCALE). This requires evidence, which, as decisions are being made, shapes them to be more effective. As communities review their direction (self-evaluation), they identify successes and challenges and produce a functional analysis from which jobs are assigned to everyone (effective decision-making). These are evidence-based decisions, specific to that community.

4. *Self-evaluation involves cyclical assessments of households and socio-environmental conditions, using key indicators to grow increasingly complex*

understandings over time. Such assessments are most accurate with a diversity of inputs: from women, students, men's groups, and experts. Communities can conduct independent assessments, but in trying to act alone, they miss using techniques that experts can assist with, such as existing evidence bases a community may not know about, and key indicators to survey. A fourth task is *use self-evaluation in understanding your community*.

5. *Effective decision-making analyzes gathered evidence to create workplans that are doable*. There are three steps in this: causal analysis, functional analysis, and role reallocation. A detailed explanation of how to create workplans is described in operational detail in the appendices, and what is community-enabling about this method is that the tasks can be simple at first but are able to grow in scientific sophistication. In making workplans, the objective is to involve all partners and to balance needs against the uses of time, finances, government services, and natural resources. The outcome produces tasks that people will perform in the coming year. Plans have a negative value if the work is not done; their proposals must be doable. The fifth task is to *create a community workplan*.

This is a public document—a simple chart assigning roles that target the achievements the community aspires to. There should be roles for all: community, experts, and the government. A good workplan can be read at a glance, showing what each participant must do, and when to do it. Some communities may want a one-year workplan, but our growing experience with SEED-SCALE indicates that plans are more helpful when done quarterly or even bimonthly. Consider posting the plan in a public place, such as on the side of a building or a sign coming into town. Select a place that prompts discussion and reminds those who have not done their jobs that they need to act. This document is the community's future, and an inventory of past workplans outlines the community's history of social change. (See appendix A, table 3, for a workplan outline.)

Getting the Desired Results: Two Tasks to Do and Re-do

Actions always elicit a choice between paid-for and volunteer work. Each type of actor has value. Paid-for actions require a source of money, and money is a scarce resource, so this choice may limit the work that can be accomplished. Thus volunteers are helpful to all community plans. The

major advantage of volunteers, however, is not free labor, but the fact that these people are acting from self-interest, where the work itself is viewed as something to improve their lives.

6. *As people agree on a priority, action should start*. If a group gives itself a name, this builds pride and justifies their actions. The term we use is action groups, but many other names are possible for groups of people who are acting for the community instead of acting for themselves. Failures will be frequent—getting the action right is not as important as getting the action going, discovering flaws, and then making it better. Thus a sixth task is to *act according to the workplan*.

As communities move forward, they must also look sideways and backward. Because communities thrive on anecdotes and not on evidence, rumors and stories will abound. A countervailing forum of formal discussions, based on evidence, is one way of stemming their harm. This 360-degree perspective will guide adjustments in goals, finances, training, and oversight to ensure inclusiveness and sustainability. Discussions stemming from multiple perceptions are recursive—going forward, stepping back, looking around—and create a momentum that grows into actions.

The key is to keep moving. A community going forward with its successes calls in outsiders at the same time as it gathers up insiders. Patience will be needed to keep time-driven outsiders (who report to other outsiders with other priorities) from taking over. One exciting feature of SEED-SCALE is when communities that are investing their resources experience how this energy draws in others. The community feels it is part of the bigger world, a very different feeling from being victimized. Those who labored in the early stages, however, will often think that the newcomers are taking advantage of their earlier work. This is an unfortunate dynamic, and its negative consequences should never be underestimated.

7. *Effective midcourse corrections make the next cycle of community activity more effective*. A good midcourse correction may (but need not) adjust what is being done to reach the workplan targets, which is the usual expectation. In SEED-SCALE, midcourse corrections always shift actions toward strengthening the four principles. Community commitment grows and keeps going forward when principles are strengthened. Thus the cycle of seven tasks comes to its final task, to *make midcourse corrections*.

In the listing above, the seven tasks are presented in one order. In appendix A they appear in a different order. The sequence in which the tasks are accomplished does not matter, and this sequence should be adjusted for differing situations. What is important is that all seven tasks be done, and doing an excellent job of any one task (or all of them) is not a priority. Doing them all again, and making the cycle better the next time, is what counts.

Who Does the Work?

Four principles, five criteria, seven tasks—all of these launch a scaling up of community-based social change. Who performs them? In traditional development schemes, professionals are hired, certain people are paid, and these individuals may then pay others. In SEED-SCALE, the workers are the community, and communities contain multiple groups laboring not because they are paid, but because this work improves their lives. SEED-SCALE is about redirecting the actions in life to improve life. The motivation that enlists all participants is self-interest. In salaried work, people toil from self-interest, that is, for their salaries. In SEED-SCALE, work is done because of a collective community self-interest.

Those who do the work cluster in multiple groups; often one overlaps with others. The three-way partnership defines functions: growth from the bottom-up, stimulus from the outside-in, and enablement from the top-down. But within each function, who works with whom? Leadership comes from a local coordinating committee that draws representatives from the three partners. Often this group is called a steering committee or an executive team. The actual work is performed by some form of action group: the people who expend human energy and who follow the workplan. Their actions are partly caloric work, but, in equal measure, people fulfill their aspirations, and this is visible in their increasing amounts of education and greater maturity. Social transformation radiates from this action hub.

5

Assuring Accountability through Better Paperwork

Often paperwork is viewed as a pointless filling out of forms, which is one kind of paperwork. But another kind assures accountability and directs and protects the processes of community change. Writing down project plans for communities, even if its people are illiterate, is not just scratching maps in the sand, or making points on whiteboards and flip-charts. Diligence with paperwork can bring communities together. And paperwork is as essential for community-based programs as it is to the processes of bureaucrats.

An episode involving our own family brought home this lesson. At seven in the morning on Valentine's Day 1992, the telephone rang in our home in rural West Virginia. "Have you seen this morning's *Washington Post*?" a friend in the nation's capital asked. "Is the newspaper really that interesting this early in the morning?" Daniel grumbled, looking across the room at his wife, Jennifer. "Well, your story is the whole front page of the second section," this friend said. "Listen."

> As the word spread, from the Corner Shop to the IGA gun counter, to the North Fork Baptist Church, the latest rebellion in this old Civil War campsite broke out. . . . When presented with a proposal to lure badly needed state and federal money by making "revolutionary" changes at the community's only high school, 700 townspeople came streaming down the mountainsides to object. . . .
>
> Aware of the school's financial problems . . . Daniel and Jennifer said they drafted a "revolutionary" proposal that was only what had been called for by [President George H.W.] Bush in his State of the Union address. . . .

> The Taylors stress that it wasn't a full-blown proposal, but rather a "talking paper" for an alternative school plan. . . .
>
> Nonetheless, after word got around that it had been given cursory approval by Gov. Gaston Caperton after a casual meeting with Daniel, fears and tempers were raised so high that sheriff's deputies and state troopers for miles were alerted for possible violence Jan. 21 [at the school board meeting]. That night, a stream of headlights lit the valley as hundreds of cars filed down the windy mountain roads to meet at the Circleville gym.[1]

At the meeting in the gym, with rumors flying and hundreds of people asking questions, it was impossible to build the forward-thinking discussion needed for serious planning. SEED-SCALE advocates partnership—and the potential for partnership had, with rumors spawning more rumors, spun out of control. Not only did the *Washington Post* pick up the story, but a researcher from Harvard University arrived to write this up as an example of how well-intentioned experts can get themselves badly burned.[2]

The most important lesson in the above experience is that while we were doing SEED-SCALE activities, we had not filed the paperwork: partnerships had been formed, successes were being built on, and a plan was evolving from that to change school management, but there was no record of our actions. Although we had followed a process and talked with key individuals in the community, county, and state, we had done so in private meetings. When rumors started to fly, most of those individuals fell silent; they were politicians attending to the political winds. There was no written record of discussions with the previous school superintendent, the president of the school board, or others, and no truly public meetings to refer to. Because we had seen these discussions as still developing a plan and momentum for the project, we had not publicized the rising ideas, for fear of blocking creative energies. There was, accordingly, no paperwork.

One further lesson for those of us caught in the middle was that we had confused our roles, mixing our positions as members of the community with our expert knowledge of what was succeeding worldwide to improve schools. Without being invited in, we had stepped forward to propose significant changes, and a newly installed official, the superintendent of schools, had seen that as an invasion of his territory. We had tried to speak for the people and we had also claimed the role of experts—so what was our authority?

And then, as so often occurs when there are no written reference points, one mistake bred additional problems: hard work was misinterpreted, good intentions were viewed as suspect, and words spun out of control. Such domino effects of misinterpretation are especially likely when people overstep their roles. And in this instance, those problems were jumped on by a person eager to consolidate his control. But good paperwork, had we had it, might have contained the crisis. In this instance, while a new superintendent knew nothing about the earlier discussions, when he started to raise concerns, there would have been a history to point to. Written records of communications with his predecessor and evidence of a participatory process in the plan that was being explored would have rebutted his fabricated accusations. Paperwork might not have solved the problem, but it would have showed that we were playing by the rules.

Good paperwork is particularly hard for communities to produce, because information and management systems used by governments and large donor institutions are not designed for the skills most ordinary citizens have, systems that seem to exist as a tangle of paper trails creating a world only the institutions understand. Moreover, through these papers, outsiders usually establish themselves as gatekeepers and arbiters, imposing controls on the direction and the actions communities take. To work successfully with papered-over systems, communities need skills training and a systematic process that enables them to use the outsiders' paperwork to meet their own needs. And those strategies require knowing the kinds of paperwork they must deal with.

Communities have the opportunity to create their own paperwork systems, and doing so will position them favorably, so that when outsiders are called in, the outsiders must play by the community's rules. The workplan proposed in the seven SEED-SCALE tasks is that core document. Outsiders/government may respond that communities must also play by their external paperwork and rules—but at least, paper-to-paper, there is a documented format of engagement. SEED-SCALE is usually spoken of as a process, and, as a process, it is structured in records kept in a simple, easy-to-read set of four documents: a record of conversations; a workplan, which outlines planned actions; a budget, which outlines the resources needed; and a human-energy audit, which reports on work done.

Paperwork That Causes Problems

1. *Files*. Files move decisions from one desk to another and bring together the various parts of decision-making; they create a historical record. But when their impact radiates beyond the bureaucracies they are designed to serve, they can reshape a community without its knowledge. Files tend to be closed to anyone outside the institution that creates them. Ostensibly, they are managed to be in the public's interest. But, in fact, they are handled mostly by clerks accountable to no one. Those inside the bureaucracy add their opinions to the files; those outside, not knowing what is being said about matters vital to their interests, have no opportunity to rebut the comments. In this manner, the files that define community life grow, but in these files there is no engagement with the community. Files are parking places for perspectives and are essential for the historical record; yet communities need a process by which to create genuine partnerships, with an open sharing of information, so collaboration is possible.

In the age before electronic documentation, maybe a single copy of a document was all that existed, on which people wrote consecutively. Multiple copies sometimes followed, passed out to the relevant individuals or offices, but they were usually stashed in file drawers and rarely referred to again. Electronic media now offer easy access to files, wide distribution, and more opportunities for participation. Electronic files have opened a previously closed process and changed peoples' expectations. Effective community-driven processes that become partnerships with governments and outside groups are now more feasible. Had this been available when the school confusions in West Virginia exploded, the participatory planning process that had occurred up to then would have been transparent.

2. *External budgets*. External budgets order the distribution of funds for a project. But budgets are typically created in secret, either by groups who want to avoid sharing decisions or by groups who want the resources. The commodity being managed is usually something everyone wants a portion of. Confidentiality, coupled with financial secrecy, is a topic that warrants public debate. Secrecy in financial matters limits the possibility of obtaining resources that might come from other partners—most importantly, the community. It also strengthens the perception of control by those doing the obscuring.

But in SEED-SCALE, the biggest problem is that budgets convert social change into the shorthand of money. They invert the reality that social change consists of people-based energy. With a focus on money, the first question communities usually ask of potential partners is, "How much money do you have to spend?," a question that is very different from "What needs doing?" Thus dollars, not the priorities of the community, become the defining commodity. An open voice of the people has been muzzled by a hunger for something scarce. Additionally, although narratives accompanying the budget specify the goals of the project, and hopefully the priorities of the people, these can be obscured by control. For those privileged to be allowed in, getting their names onto the budget papers gives them a salary, equipment, or a specified percentage from the fund's distribution. And, of course, the promise of outside money always breeds the risk of corruption.

Budgets have become unquestioned. They, like files that are mishandled, close off partnerships when they are used as a means to determine who is a partner and who is not. But, when designed differently, *budgets can be participatory*. They can bring the community into the process as partners. The remedy to budget difficulties lies not in starting with the money, but in starting within the processes inside the community. Let participatory collaboration on what needs to be done build as community members engage with one another, have budget columns that meaningfully include community resources, and then, when this base is in place (grounded in the reality of the community and its people), look to external funding. This sequence is what the workplan process (described below and in appendix A) achieves.

3. *Requests for proposals*. Requests for proposals (RFPs) are used frequently by donors to solicit ideas for participatory engagement. The intent (basically a good one) is to match donor and community priorities, but this frequently undermines community capacity. RFPs compel applicants to try to provide the "right" answer to what the donors want, and the donors, understandably and appropriately, have their own priorities. It is easy for communities to subjugate their priorities in order to get money. Other problems may also appear: relying on funding that will not be available indefinitely; creating competition for a limited amount of money among agencies that should be partners; commercializing social action as though it were a product for sale; psychologically

depending on project directions from a donor; and giving credit for successes to the donors' largesse, not to community action.

4. *Outsider plans*. Outside plans can be helpful, but they can also hinder partnerships. Commonly, donors (and, increasingly, governments) send a team of experts on a planning mission to shape priorities to local conditions. Such efforts tend to consume enormous sums of money (much more than in a SEED-SCALE process), and they almost always halt community momentum. The intent, though, is correct: seeking agreement between outsiders and insiders. But, too frequently, outsiders convene community meetings and thus make it clear who is in control. Only a strong community that has its priorities worked out, or an unusual team, is able to form a balanced partnership. Instead of relying on exceptional teams, what is needed is a process that brings the two sides together.

A Better System of Paperwork

SEED-SCALE, while seemingly not relying on paperwork and instead grounded in focusing on human energies, pivots around one paperwork item: the workplan. The workplan brings together the records of conversations (the function done by files), it outlines priorities (the function of RFPs), and it allocates resources (the function of budgets). And, when repeated iteratively, it charts the work that has been done (the function of an audit). The term "pivot" is used when action switches from one direction to another; this switch can be small or large. The workplan pivots around work, not money—money is simply one resource in the workplan. SEED-SCALE paperwork is complementary among all resources. It brings forward a capacity for balance—an ability to gather together the range of communications, plans, and reports—so communities and their partners can more productively engage the paperwork megasystems of traditional development services.

The workplan is the foundation document, which incorporates input from the government, experts, and donors. It focuses on the tasks to be accomplished in the community, but it systematizes resources and training around this focus, creating a schedule for all participants. Traditional plans move through levels of objectives, situational analyses, inputs, outcomes, and methods of monitoring for similar ends. The workplan seeks to first gather the partnership around a simple task—assigning responsibility

for who will do what, with what, and when—and then moves on to another, more complex round of work.

The workplan does not replace the regulations of officials, the reports of experts, and national budgets; instead, it gives these a foundation in local circumstances, so their formulations gain authenticity. It slides underneath the stack of government and expert paperwork and becomes a foundation document that expresses the priorities of the people. Governments and experts then build on this workplan, because they were also part of its creation. The workplan is the meeting place on paper for the three-way partnership. Rather than the paperwork being controlled from the outside, the outside comes in and supports the creation of a local base on which to anchor all actions.

Workplans, through their locality-specific, independent nature, foster self-assembly by communities throughout a region. The workplan process generally becomes more effective the more it is utilized: annually is almost certainly too long, and quarterly or bimonthly is ideal, as this appears to launch increased engagement and greater community commitment. The objective is not the plan, but the process of planning. So, to grow process, keep it simple and do it repeatedly. What then evolves is not a complicated plan, but an increasingly interconnected, engaged partnership working in collaboration.

Contracts are items within the workplan. Contracts are the commitments made by each partner, which specify reciprocal expectations and the obligations of the community and the individual partners. This transparent give-and-take levels negotiations more effectively than a directive to listen to the community. People understand deals, and this is fundamentally what a contract is. Contracts have an explicit duality and are more easily understood than files, budgets, plans, RFPs, and approved proposals, all of which move control outside the community. The workplan is a gathering together of contracts. Deals will not always be balanced; certain people will do more in a community, and certain people will get more. What is important is to articulate the deal in as public a manner as possible. Then, with the next deal, there is a base for negotiations with disempowered voices that, if they gather together, will have grown stronger.

An inclusive budget is another item within the workplan. It differs from an external budget in that the former contains all the resources—most notably, resources from the community—that are required by a workplan,

while the latter deals only with monetary resources. Money is only one component of a budget; an equally important component is time. Time is a renewable and sustainable resource, and it is the currency all partners both possess and can contribute. Typical budgets categorize investments of time as cost-sharing, sweat equity, or in-kind contributions, suggesting that these contributions are less significant than money. Downplaying time misses the value of the most important input in a project. To accord time its proper prominence, the workplan first specifies the functions that need to be carried out, and then it lists the jobs that need to be done. This ordering is important: functions first, then the inputs of people, as well as outside contributions of training and materials. These inputs are presented as the contractual obligations of partners, with an expectation of accountability. (An operational matrix and a sequencing of tasks for workplan creation is presented in appendix A.)

Seeking Accountability

A process using human energies and multiple levels of resources must be grounded in paperwork; documentation holds partners to task. Without paperwork, accountability falls away. (Other rationales for paperwork are as a means for organizing a diversity of inputs, ordering actions, and keeping a historical record.) But to sustain trust, which is the glue that holds human energies and all resources together, accountability is essential—and that needs to be both written down and made public. A demand for accountability also accompanies the allocation of money by donors. Thus most paperwork structures itself around financial accountability, the purpose of which is to avoid corruption. Moreover, accountability is a legal requirement. In documentation, the piece of paper (or, now, the electronic version) makes the process real.

SEED-SCALE, with its easy-to-read set of four documents (a record of conversations, a workplan outlining planned actions, a budget listing the resources needed, and a human-energy audit), provides an alternative, positive framework for action that enables communities and the larger players (governments and experts) to build a plan for moving forward. It brings a mode of getting evidence from the collective community and giving it a voice with which to engage with the side whose paperwork can never be equaled: governments and donors. But while the community's voice may never be able to trump that of the government, and while a donor's money

will always cause the powerful and the selfish to scramble for control, with a good community workplan, what governments and donors find is a statement of local reality that can be laid alongside the whole pile of papers they bring. The outsiders then must work with that. And the more the community has come together in creating that plan, the more governments and donors heed this local reality. The result is that a simple workplan that states what the community has and suggests how the community can work as a partner becomes the foundation for all the stacks of papers that are above it.

6

A Crisis Can Become an Opportunity

Henry G. Taylor, Carl E. Taylor,
and Daniel C. Taylor

Carl was on the last plane out of Baghdad before the start of the 1991 Gulf War. He and Jonathan Fine, head of the nongovernmental organization Physicians for Human Rights, were evaluating the impact of six months of United Nations sanctions on the health of Iraqi children. They were finalizing their report one night when confirmation came that bombing would start the next day at midnight. Leaders in Baghdad were so anxious to get the findings to the UN that Carl and Jonathan were given the last seats on the last plane to leave Iraq.

A few evenings before, Carl and Jonathan had been told to be in their hotel lobby at a specific time. As they waited, two guards with automatic weapons came through the revolving doors and politely but firmly ushered them into a waiting black limousine. They knew nothing more, not even whom they were speeding through darkened Baghdad streets to see. The limo finally stopped at the gates of a heavily guarded compound. Yasser Arafat waited inside—he was relaxed, with a clear air of self-confidence. Over a surprise dinner, the conversation moved quickly from the immediate crisis in Iraq to the larger crisis in the Middle East. Arafat said: "The United States should realize that this cycle of violence will lead to later cycles of violence. Dropping bombs tomorrow will not lead to peace; retaliation will create more distrust. Arabs are never defeated; they simply wait and prepare for revenge." Arafat went on to emphasize that what would most help relations with the Arabs was not aid, or even firm borders and homelands, but respect. He listed the many occasions, across decades, when Western powers had chosen to punish the Palestinians instead of respecting

them and working in partnership with them toward a mutual solution. "This crisis will go away," he said, "only when we accept each other's differences."

Back in America, Carl immediately went to Jim Grant, the head of UNICEF, who then went to UN Secretary-General Boutros Boutros Ghali. As bombs were actively falling, they arranged for convoys to bring in medical supplies for Iraqi children, creating a corridor of peace for safe passage, even during the bombing. But rather than respecting the children's right to life, these activities soon became a pawn in efforts to checkmate Saddam Hussein. Sanctions were increased, despite numerous reports of rapidly increasing child mortality and malnutrition in Iraq. Aid became a bargaining tool, instead of a means to show respect for life. Respect is one of the most powerful of human energies—self-respect and respect from others can turn societies away from war and toward positive social change. It is something that all people can own and share, and it grows powerfully; it can bring forth collaborative action in a matter of days.

Neither peace nor security can be bought—and without peace and security, all resources in a society are exploited, if not exploded. The result that followed in Iraq was that what had been a corridor of peace, of respect for children, turned within months into efforts to exert control. The much-acclaimed military response that followed subdued but did not defeat the foe. In 1991 it was called a victory, but Saddam Hussein waited, as did the internationals, as did another war, a bigger one—and it seems that other wars may follow for some time.

Wars are a part of social systems colliding. Peace comes from the changing dynamics within societies, where engagements between peoples are not antagonistic. Peace and war are both situations where relationships shift in complex systems. At play in the former is an effort for cooperation, at play in the latter is an effort for control—and, as always, it is the poor who suffer most. Still, crises such as those caused by both Iraq wars have moments of opportunity when societal systems can be rebuilt. A crisis need not always lead to danger. A skilled social-change professional can see and use opportunities inside systems. In these times of flux, new rules of engagement, especially those with a people-to-people focus, can be put into practice.

The Chinese word for crisis, *weiji*, combines the character *wei*, which means "danger," and the character *ji*, which means "opportunity." Turning a destructive force to good is a different engagement with danger from try-

ing to overpower or defeat it. Most of the case studies in this book describe communities taking incremental steps to improve their futures. But when a crisis strikes, incremental steps can become leaps forward. Danger can be turned into an opportunity, and this response can restructure community life.

As climate change alters fundamental planetary systems, massive disruptions will appear with a cascading series of consequences.[1] As corporate decisions translocate global economies, people will hunt for new work by the thousands. As wars, uprisings, and ethnic cleansing increase because of frustrated aspirations, governments will tend to contain the energies of people rather than nurturing those aspirations. What could be the resource base more likely will become the problem. Today's greater access to information gives people tools with which to organize in one direction or the other. All this is more than a matter of perspective; it is an opportunity to choose what base we, as humanity's change agents, elect to work from.

Over the decades, our family has shared in the chaos of a number of disasters. Hope comes often, even in desperate times—and when it does, people have seen opportunity within their despair. At best, outside aid augments, but hope comes from within. We saw this in the partition of India and Pakistan in 1947, in the rebuilding of the Tibetan region of China, in Nepal after its civil war, and with a dozen major epidemics across our globe that devastated populations. In disasters, hope lays latent, being kindled each day by little actions, one person to another, which are some of the most beautiful actions we have ever seen at any time. But this hope is tiny and flickering. SEED-SCALE offers a way to grow hope into new, larger relations. The opportunity to do so comes from breaking embedded habits.

Flood in West Virginia

The first example we share comes from our home mountains in Appalachia. On November 14, 1985, a local newspaper announced:

> High waters resulting from five days of steady rain roared down the hollows and valleys of Pendleton County, leaving at least 16 persons dead and hundreds homeless. Turbulent waters killed more people in a single night than any event since the Civil War.
>
> As walls of raging water struck our home communities with unyielding force, hundreds of homes were washed away and hundreds more were destroyed.

> Rivers overflowing their banks cut new channels through farms and skimmed thousands of acres of rich topsoil from bottom land, leaving mountains of rock and sand. Farm machinery, buildings, mobile homes, dead cattle, sheep, and hogs were strewn along the entire length of these once fertile agricultural valleys. . . .
>
> The county was isolated from the outside world for three days, with 18 bridges washed out and massive slides blocking roads in all sections of the county. Electricity and telephone service were halted, with utility poles washed out and trees across lines. The only communication out of the county was provided by ham radio operators, who worked 24 hours a day relaying emergency messages.[2]

Henry Taylor was then a health-center physician in Pendleton County. After a long day as a modern country doctor, providing emergency care in this crisis, he shut the door of the clinic and, with roads broken, started to walk the mile toward home. Reaching the Potomac River, he found that raging floodwaters had carried the bridge away. Using a radar gun, the nearby state trooper, Rick Gillespie, clocked the speed of debris being carried downriver at seventy-two miles (115 kilometers) per hour. Henry returned to the clinic, collapsing on an examining table for several hours' sleep. The next morning, he and two other men who were also separated from their families by the still-surging water attached a long string to a hunting arrow and shot it across the river. By noon, patchwork parts had produced a bucket-and-pulley contraption to carry milk and messages to their families on the other side.

After ensuring the safety of their families, community members met at John's Pizza Den, which stood on a hill in town. They compiled a list of essentials—twenty-five body bags, injectable morphine, antibiotics, bottled water, radios, and the like—and transmitted it by amateur radio to the State Emergency Operations Center. By the end of the second day, relief helicopters arrived from the National Guard, but even those brought unexpected challenges. John, a still-traumatized Vietnam veteran who owned the Pizza Den, hit the floor every time the helicopters passed overhead, providing teenage witnesses with vivid evidence of the enduring force of terrifying memories.

Throughout this crisis, neighbors were also mobilizing (just as Henry had in rigging the pulley to get basics to his family). After attending to

one's own family, attention turned to the community. To control the spread of disease, people went out, collected, and buried thousands of dead animals by hand and by tractor scoop. Hay came in from Ohio for surviving livestock, and mobile housing from Alabama for displaced people. Donated old cars arrived in convoys from Maryland and surplus clothing from Pennsylvania. Local people began to joke about the "second flood" of well-intentioned relief that required more donations (in the form of storage shelters and labor) to manage them.

Aware of their vulnerable members, the community wondered how to get aid to those in greatest need, and indeed began to define what "greatest need" was in a country of wealth. Were those who should get assistance those who had lost the most, those who would have greatest difficulty recovering, or those who had been neediest before the disaster? A first challenge in a crisis is immediate—but sooner than most who are involved expect, opportunity enters to answer a second challenge of the crisis: how to use both the flood itself and the resultant flood of aid as opportunities. At these moments of flux, long-reaching initiatives can be put in place.

Civil War in Bangladesh

Bangladesh offers superb examples of people learning to turn disaster into development. The country has undergone repeated tragedy, including, in one generation, two wars of liberation: first, chaotic bloodshed between Muslims and Hindus when it was partitioned from India in 1947; and then a war of independence, when Bangladesh split from Pakistan in 1971. But the biggest crisis has come from population growth combined with poverty, a crisis that yearly grows more extreme. At the beginning of the twentieth century, the country's population was perhaps 30 million; by midcentury it was 50 million; by the end of the century, 120 million; and by the middle of the twenty-first century it will most likely be 200 million.

People are moving onto ever-more-marginal land. The country sits on the world's largest delta, a reverse funnel for rising waters and a landfall for typhoons arriving off the Bay of Bengal. For nearly half the year, much of the land is flooded. Flying over the land as such times is disorienting: as far as the eye can see, villages appear as islands, and the countryside seems to have been swallowed by the ocean (a harbinger of global sights to come as seas rise). Over the years, people have learned to cope with the waters by raising their villages, on stilts, to the necessary height above the flooded

paddies. For decades, doomsayers said the growing numbers of people and the predictable flooding gave little chance for progress. Yet ahead of the help coming to them, the people are managing, through their energies. That much is survival, but three examples show differing potentials to turn crises into development.

After the 1971 war, Johns Hopkins University's Department of International Health became involved in relief and recovery efforts, and the new government assigned a team from the Narangwal project (chapter 12) to Companyganj, a district that still carried the name of the East India Company from two centuries earlier. Under leadership from Colin McCord, eager young Bengali doctors applied Narangwal lessons to provide integrated and comprehensive community-based health care. A small government hospital was brought up to high standards. Working through existing government systems, the outsiders retrained local people and achieved extensive coverage. Great effort went into training villagers, with much of the testing of options built on the abilities of both men and women workers.

Then the project collapsed. The disaster was declared over, the war of independence from Pakistan won, and the archaic bureaucracy of the earlier British Raj reasserted itself in government services. The project had been growing because of emergency relief from the outside. Knowing from the outset that international donors would terminate their support, the project had tried to integrate innovative substantive change into government services. The government cooperated so long as they were getting money, international training, and attention. But the mindset inherited from colonial times canceled those efforts when the stimulus ended. The team that had been funded by the project was then dispersed throughout other agencies. Even anticipating what would happen in the future, it is hard to grow self-sustaining capacity in a model project. During crises, there is a natural tendency to return to rebuilding everything to resemble as closely as possible what was there before (including the problems). Funds come for rebuilding—but then stop. To utilize crises to make life sustainably better than it was before, it is essential to set up internal demonstrations of new changes. This involves more than hiring local staff.

There is another option: to make the local experience into a learning center, a SCALE Squared center. In this, communities lead with experiments, where what is being celebrated is not the rebuilding, but the change.

This, too, requires leadership and funding. In our second example, this is what our Johns Hopkins colleague, Henry Mosley, working with Susham Bhatia in the mid-1970s, was able to do.[3] From a field-research base in the Matlab district, this group extended 1960s tests of cholera vaccines into a series of studies on family planning, integrated with health interventions. Establishing an extraordinary database by reliably recording births and deaths in a large and expanding population, they created one of the world's longest-lasting and best demographic laboratories, producing over 1,000 scientific publications to date. For example, Matlab's data proved that linking services for family planning with maternal and child health made both types of services more effective.[4] Such studies helped change international understanding at the World Conference on Population and Development in Cairo in 1994; accordingly, donor support and national action shifted from promoting just family planning to promoting balanced reproductive health. Since the 1970s, Matlab findings have fed a rapidly growing base of action, as more than 4,000 nongovernmental organizations in Bangladesh learned to work more effectively in community-based programs.[5]

The people in Matlab have had the quality of their lives grow—but the focus of that SCALE Squared center has been experimental, developing new solutions. SCALE Squared centers can also have a second element: learning that extends the experiments through a population.

The work of one such organization provides a third example. Under the leadership of F. H. Abed, the Bangladesh Rural Advancement Committee (BRAC) became "the largest, non-sectarian, national development agency in the world."[6] Its programs affect life in 50,000 of the country's 86,000 villages, providing direct services to 38 million and focusing on the poorest people. It has taken ideas and extended them not so much by delivering services and running projects (although that aspect is there, too), but by having people learn new behaviors.

BRAC's method is impressive: it uses both experimentation and action learning. Almost 25,000 *shasthya shebikas* (community-health volunteers) work at least an hour a day. Each is visited two to three times a month by BRAC supervisors, who are part of a full-time staff of almost 20,000 employees and 34,000 part-time teachers. The *shasthya shebikas* charge only small amounts for supplies and drugs, so growth is being minimally driven by external funding. Village committees and women's groups provide leadership to ensure transparency in accounting for both local and outside

funds. The following statement by Abed and M. R. Chowdhury (the leaders of BRAC) illustrates their philosophy: "Staff must have the authority to experiment and to adapt programmes as they feel best suits their local situations. Our management system actively encourages innovation and flexibility, which is key to learning. Mistakes will occur, but errors are the only route to discovering the correct path. Fear of making mistakes prevents many public sector organizations from letting their staff's creativity flower. We use monitoring and field research as an early warning system."[7]

These examples from Bangladesh highlight the contrast between solutions that address an immediate crisis, where action is needed, and solutions that address messy, deep-seated problems, where responses grow organically, building from opportunities presented in the changing moments. Physical disasters, such as a typhoon or a war, present points for immediate action. Less obvious are the ways to turn relief into development, instead of allowing old patterns to reassert themselves. SEED-SCALE provides a process to start with immediate action and then grow that into a solution, creating a context that prevents crises from recurring.

Communities' vulnerability to crises can be latent, kept alive by unpreparedness as societies ignore the deficiency in the hope that a crisis will not return. Repression is easy, and it is typically supported by a repressive structure. Wherever and whenever one group has imposed itself on another, less-powerful group—Europeans or Native Americans or other colonized peoples, whites or blacks in apartheid South Africa, Russian or Islamic minorities—bitter memories persist, fueling dreams of revenge. Peace is not present; anger lies waiting. An opportunity arises when the anger explodes, getting inside these systems to change relationships by changing the principles of people-to-people engagement, and to utilize processes to turn the future toward hope.

Seizing the Opportunity in the Middle East

Carl's involvement with the Gulf War did not stop when he got on the last plane out of Baghdad. When the massive military action ended, UNICEF asked him to organize a program in Kuwait for children who had experienced psychological trauma. Families had been forced to watch their men tortured; women and children had seen their fathers and brothers left hanging from lampposts in front of their homes. Carl remembered his

experiences during the partition of India and Pakistan in 1947. At one point then, he had held in his arms a dead three-year-old girl whose skull had been deeply cut six times with a sword. He had wondered what had caused such maniacal hatred that a killer could not stop hacking the head of a little girl. Later he witnessed a similar frenzy in Biafra during the Nigerian civil war, and again in Sri Lanka, Bosnia, and Croatia when attending to subsequent crises. Why do normally civilized people rise and engage in mass psychopathic killings of innocent children? Attributing such bestiality to religious differences is an excuse, not an explanation.

In Kuwait, Carl helped plan a pioneering program for the psychological rehabilitation of children. Post-traumatic stress disorder (PTSD) was well documented for adults in war, but his question was, could the trauma of war also be something that influenced later actions by children once they became adults, actions that caused new wars? Among certain populations, it seemed that war returns on generational cycles. Although the fighting stops, and peace is claimed, war and senseless killing leave deep psychological imprints.[8] Pain may seem to have gone away, but emotions are passed across generations, embedded in the continuing energies of a society.

To quiet such persisting traumas in Kuwait, a five-component treatment program for children was implemented. First, schools and daycare centers were reopened with a minimum of fuss, to show that life was returning to normal, but, in addition, all children were screened with a quick and simple standard test. Second, children with acute problems were referred to psychiatric care. Third, the existing institutions were used and care was normalized, as most children received treatment for PTSD in group-therapy sessions at school: drawing pictures, writing stories, and talking about what they had experienced and what they feared. Fourth, schoolteachers in all classes were trained in basic PTSD preventive therapy, so they started promoting positive attitudes. Fifth, and most importantly, the entire community discussed the needs of their children. Over the radio and in public meetings, health centers, and mothers' groups, people of all ages were encouraged to deal with their terror by talking about it. Children needed to hear others dealing with fear and pain.[9]

This UNICEF initiative in Kuwait was subsequently extended to Bosnia, Sri Lanka, Croatia, and a number of African nations.[10] The program grew, and remarkable advances were made, under the guidance of Magne

Raundalen, at a center in Norway that specialized in trauma care.[11] Systematic research and large field programs established an effective cluster of treatments for PTSD in children, which also addressed the unhelpful responses of adults. When a child spoke of nightmares, parents had previously almost automatically said: "Don't talk about the troubles. Forget it. That is over now." Yet adults often could not stop talking about their anger. The result had been to leave the children's terror undealt with, overlaying hatred on top of it. Fear and anger got buried deep in their psyches, waiting to be activated later. We argue that this repression causes violence to resurge a generation later, creating the cycles of violence seen in the Middle East, the Balkans, Asia, and Africa. Parallel psychological responses have been demonstrated in children growing up amid violence in urban slums in the United States.[12]

In some places, the cycles to violence move quickly: places that view peace as the absence of war, rather than the connections of respect that should emerge. Peace comes from respect across differences, an intrahuman energy of bonding. Carl witnessed this in the spring of 2000, when helping plan health services for the hoped-for new state of Palestine. Walking the streets in Gaza, he watched a father making wooden guns as toys for a group of boys. A few days later, on a morning walk just north of Jerusalem, he looked down from a hill and saw two groups of boys about eight or ten years of age, competing in Stone Age–like warfare. An older teenager was coaching them on how to use slings, such as David used against Goliath. When Carl talked later with Arab colleagues, they were not surprised, saying: "The average Palestinian family has eight children. One boy is preparing to take the place of his father when he is killed. One is in the United States sending money to the family, because the economy is controlled in Palestine and there is no real source of income there. Another is in the Gulf, also sending money back. The fourth is in jail. And all four girls are preparing to have eight children."

Crises can keep breeding crises—or, managed differently so as to engage human energies in a positive way, they can become an opportunity for change. This change is not done to the people, but requires their engagement, in a partnership. A partnership may emerge because of economic dependency, but even that is not deeply lasting; a partnership grows deeply when there is respect. Merely giving aid is not the simple answer. We must get into the energies inside societies, to redirect relationships.

Future Opportunities

With increasing human pressure on fragile ecosystems, and more densely packed social systems, natural and man-made disasters will probably increase, too. Will communities respond only by coping, pulling themselves together at each disaster, only to return to previous conditions? Or will they reconstruct a crisis and turn it into an opportunity?

Disaster-response planning commonly separates itself into three phases:

1. Immediate response, to prevent loss of life and suffering
2. Recovery efforts, to rebuild and redirect everyday life
3. Mitigation, to reduce the causes of vulnerability and prevent recurring crisis[13]

Communities, governments, and experts must work in all three phases. The SEED-SCALE process offers a strategy for communities, so that when a crisis strikes, people can move away from viewing themselves as victims and merely finding an immediate response, and instead initiate positive change. Step one is to deal with the immediate crisis. With the satisfaction of addressing those needs, it is easy to stop there. Step two should start almost directly thereafter: launching a new direction, and taking advantage of partnerships that can be restructured in times of crisis. From these the third stage can grow: a new future, with evolving societal structures that can be brought into play and grow longer-term solutions.

A crisis makes it clear that new realities are operating. Since it is impossible to meet large needs all at once during disasters, people may be willing to accept incremental, locally initiated change. The crisis has already destroyed the old, and now perhaps people can talk about what might be better, while holding on to what was especially treasured. What SEED-SCALE does is to promote partnerships from the outset, involving the community, the government, and assistance. Rather than sending in the profiteers, it introduces a process to start strengthening partnerships that are currently disrupted and perhaps can be restructured; then, with its adaptable steps of action, it starts organizing a direction amid the confusion.

But a caveat is required, as crises also provide opportunities for profit making. Local people are the first to spot these profiteers; and then they typically seek to join their flood, even though the locals know this is a short-term opportunity. To stem that reaction, process is needed, so the larger vision is mandated through authority: "This is how one responds to disaster."

All three partners (community, officials, and experts) are therefore needed. In the urgency of the moment, the differing skills and resources that they bring are vital. The role of outside-in expertise is important. Such perspectives and technical skills can convert the emergency responses into a foundation for longer-term change. Openness by the top-down is also important, as systems, factions, and policies that were previously separate and rigid can be bridged under the guise of an emergency.

The five criteria of SEED-SCALE help direct the deep restructuring that is possible. They provide benchmarks by which to measure progress, so realistic next steps can be shaped:

1. *Inclusiveness*. Is action helping those in greatest need?
2. *Sustainability*. Is the basis of a better life being built?
3. *Interdependence*. Are actions building trust, or dependency?
4. *Holism*. Are priorities focused on long-term needs?
5. *Iteration*. Is monitoring correcting errors, making each trial better?

Attention to the needs of both people and the environment is essential. In Pendleton County, West Virginia, a professor from a nearby university came in regularly after the 1985 flood to help counselors set up a program to manage PTSD. Discussions of personal trials and community adaptations followed: in the local media, in churches, and in rescue squads. People need to see a crisis as an opportunity, and they also need a process to help then take advantage of a situation where change is possible. In West Virginia, community capacity was measured systematically and encouraged to grow. But directing energies toward new, positive positions will not happen naturally.

In 1998, another major flood struck West Virginia. By that time, Henry had become West Virginia's state health officer, and from that vantage point oversaw rapid and effective responses by communities, state government, nongovernmental groups, and the Federal Emergency Management Agency. In the thirteen years after the earlier flood, river- and rain-gauges were now in place, linked by microwave transmission towers to the State Emergency Operations Center. Improved communications alerted each community to its specific threats. More-focused action this time mobilized resources. Lessons had been learned from the earlier crisis, and as a result, lives were saved and costs contained. A process was in place.

II HISTORICAL DEMONSTRATIONS

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7

The World's First Example of Intentional, Community-Based Development

Ding Xian, China

The past half century has seen a wealth of intentional community-based development plans, projects, and debate. The most aggressively advocated ones recently were the Millennium Development Villages, and the largest probably were India's Model Villages program of the 1950s. But where did this greatly promoted, heavily funded approach originate? Ding Xian seems to be the first such project, and it arguably had a larger and more lasting, but persistently unacknowledged, impact than any of the others that followed over the subsequent century. The working-with-the-people lessons from Ding Xian deeply informed the articulation of the SEED-SCALE approach and contrasts with the "give the people the best model to copy" mindset that has characterized many subsequent approaches.

Go to the People.
Live with the People,
Learn from the People.
Plan with the People,
Work with the People.
Start with what they know,
Build on what they have.
Teach by showing, learn by doing.
Not a showcase, but a pattern.
Not piecemeal, but integrated.
Not odds and ends, but a system.
Not to conform, but to transform.
Not relief, but release.

Jimmy Yen (Yen Yangchu)

Our research suggests that planned, intentional, comprehensive community development that then went to a national scale, especially when driven by the empowerment of human energies rather than by the delivery of services, was first initiated by Jimmy Yen (Yen Yangchu) in China in the 1920s. Then, after initial successes in the 1930s in Ding Xian (formerly spelled Ting Hsien), a rural county 100 miles (160 kilometers) south of Beijing, Jimmy Yen and his colleagues, through systematic research and field trials, isolated many of the components that underlie SEED-SCALE and now inform modern, community-based, societal development globally. Although now not often celebrated, this initiative stands as one of the world's great successes. In 1943, Jimmy Yen was one recipient of a Copernican Citation, issued to "modern revolutionaries" on the four-hundredth anniversary of Copernicus's death, an award that put him in the company of John Dewey, Albert Einstein, Henry Ford, Orville Wright, Harvey Firestone, Thomas Edison, and others. The reason Jimmy Yen was cited was because he sparked a revolution where over 50 million people were introduced to life-changing education.

The team that evolved the Ding Xian Experiment is forgotten in the scholarship of modern social change, but few practitioners have had such a huge impact or been so innovative. Perhaps the explanation for forgetting this story is a Western penchant that views modern China and everything relating to communism as bad—but Ding Xian predates Chinese communism, and is a major factor in what today has made China (and other places) succeed. Ding Xian is an example from which we all can learn.

Today Ding Xian is a quiet expanse of new suburbia in the flat north China countryside. Development surges all around it, driven by new economic wealth. But a century ago, a series of community-based experiments brought revolutionary ideas vividly to life, ones that we who continue to pursue social change still are trying to learn how to apply and extend. These experiments can be argued to have created the conceptual breakthroughs in health, education, civic engagement, and livelihood that shaped the approach that underlies modern China, that of an empowered people's mentality and social responsibility.

Although credit for pioneering this approach to community development belongs to Jimmy Yen, he clearly drew on simultaneous, innovative programs worldwide, the most significant of which was the global mission-

ary movement. In those first decades of the twentieth century, hundreds of missionaries, working among disadvantaged people in almost every poor country, were introducing literacy programs, community health services, and agricultural innovations and promoting the welfare of women and children as part of an effort to combine social and spiritual well-being. Rather than merely establishing institutions that concentrated on service delivery, such as schools and hospitals, some of these innovators focused on practical and fundamental lifestyle changes, in ways that fit the realities of the local resources and culture.

In the complex field of social change, all of us learn from each other. While others, such as the missionaries and a few philanthropists, were doing intentional, community-based development, what sets Ding Xian apart was its use of the scientific method and experiments. The team at Ding Xian consisted of a combination of people who, a century ago in rural China, stood out by how their work was rigorously monitored, adapted, and expanded. Ding Xian approached its challenge with questions, not answers. It was learning from a worldwide movement—just as it was learning from the people (as the epigraph at the head of this chapter indicates).

Jimmy Yen grew up in a poor but scholarly family in Sichuan. He studied the Confucian classics until age ten, when his father sent him to mission schools, where he seems to have been exposed to the enlightened missionary approach, particularly of people who had gone to Yale University. He won an undergraduate scholarship to Yale and graduated just as the United States entered World War I. Roughly 150,000 Chinese were brought to France to do the hard labor: dig trenches and build roads. (The US government seems to have had no qualms about sending tens of thousands of its citizens to die charging out of those trenches, but it wanted Chinese to dig the trenches.) To supervise and interpret for them, the International YMCA recruited Chinese students attending American colleges. Jimmy Yen became responsible for a camp of 5,000 coolies digging trenches on the front lines. In the evenings, he found himself working as a scribe, writing letters for his men to send home to China. Each night there were more letters than he could write or read, so he started to teach literacy.

In China, by tradition peasants were considered incapable of learning to read and write, but Jimmy Yen discovered that coolies were smart and teachable. He worked out a vocabulary of about 1,000 Chinese characters, based on the words common people used in everyday speech and in the

letters he had been writing for them. He selected forty men and at night taught them to read and write. They, in turn, taught others. Soon all 5,000 of his men were spending their evenings in literacy groups. The British major in charge of the Chinese coolies on the front was so impressed that he assigned Jimmy Yen to do the same in all the camps. When the armistice was signed, most of the 150,000 coolies were literate.

The Mass Education Movement and the Ding Xian Experiment

From this beginning, Jimmy returned to China and started the Mass Education Movement. During the next decade and a half, this movement mobilized both private and government literacy campaigns in which 50 million Chinese were taught to read and write. By 1930, the Mass Education Movement had produced so many literate people that its newspaper had the largest circulation in China, and probably in the world.

In 1926, realizing that literacy was one of a multitude of needed changes, Jimmy started the Ding Xian Experiment for Rural Reconstruction, to provide rural people with practical and specific tools for improving their lives. Yen and his colleagues used what they termed a "social-laboratory method" to develop effective and replicable solutions. Their purpose was to understand the customs, master farming techniques, address health-creating dynamics, and promote literacy. In all of this, they emphasized data collection, experimentation, and the development of specific action. The solutions to everyday problems that the experiment came up with went out across China through Jimmy's publications, geared to reach even those with low levels of literacy. To improve on these and discover other ways of helping that worked, he persuaded professors from various disciplines to leave their highly prestigious lives and move (as scholars) to this poor, rural county of about 500 square miles (1,300 square kilometers), with a population of 400,000 divided into 472 villages. The professors and their families shared everyday village living, gathered practical information about peoples' needs, and systematically tested ways to meet those needs.[1] This project of Jimmy's was contemporaneous with experimental holistic living in a community setting, launched in South Africa by Mahatma Gandhi, which also included a mass-circulation newspaper, but Jimmy's projects were scientifically monitored. The striking similarity, though, is how both

were driven by a focus on promoting behavior change and shaping better lives through new applications of human energies.

The Mass Education Movement had been started immediately after the end of World War I, and the Ding Xian Experiment incorporated that initiative as a means to evolve scientific solutions and demonstrate them. Their impact grew across China, amid the increasing conflict then taking place between warlord factions. From the overthrow of the Qing dynasty in 1911 until the Communist victory in 1949, China was overwhelmed by struggles among violent and oppressive leaders, brutal invasion by the Japanese in the 1930s, and civil war after World War II. Millions of people died in famines and epidemics; fighting disrupted transport and communications and killed hundreds of thousands more. Corruption among officials was endemic, blatant, and socially debilitating.

In the midst of all this disruption, the Rural Reconstruction Movement matured rapidly, establishing a Fourfold Program of Village Work: literacy, citizenship (or good governance), livelihoods to improve agriculture and income, and health and family planning. For each subject, a "farmer-scholar" was selected by the village and trained by the team of project professionals. These farmer-scholars tested new methods and ideas through field research. They found what others in such projects have learned subsequently: that to be accepted, good ideas introduced by experts must be adapted locally. Community-based social change is not just about going to the people; rather, it is about *being with the people*; it is a partnership. In a two-step process, the farmer-scholars first experimented with simple, scientifically based methods throughout their individual Ding Xian villages; then they helped experiment elsewhere, to find out what adaptations would work in each village's circumstances.

The achievements in health illustrate the movement's impact. In the 1920s, life expectancy in China was less than thirty years; general mortality, over 40 deaths per 1,000 people; and infant mortality, over 200 deaths per 1,000 live births (i.e., one in five children died before their first birthday). That health baseline was among the more extreme in the world. In the villages of Ding Xian, the chief causes of death were convulsions (presumably neonatal tetanus, the result of an unhygienic cutting of the umbilical cord), pneumonia, diarrhea in children, and pulmonary tuberculosis. Parasitic infections were ubiquitous; one teacher in a mission college calculated that the

3.5 million people of Jiangsuo Province carried an *Ascaris* roundworm load of over 24,000 metric tons, or an average of fifteen pounds (seven kilos) per person.[2]

John B. Grant, a professor of public health at Peking Union Medical College, which was funded by the Rockefeller Foundation, joined the Ding Xian Experiment in 1928. Grant, the son of a medical missionary, had grown up in southern China. He had been in the first class to graduate from the Johns Hopkins School of Hygiene and Public Health, where his perspective had expanded from health care for the individual to health care for the community. To create field-training centers in public health at Peking Union Medical College, he organized rural and urban demonstration areas for teaching and research. He broadened the definition of health professionals beyond physicians, establishing training programs especially for midwives to promote obstetrical care and family planning.[3] In Ding Xian, Grant and his Chinese colleagues went further, focusing on simplifying procedures to those that made the greatest difference and training ordinary villagers as farmer-scholar health workers in the delivery of those procedures. They evolved eight principles that remain valid today:

1. Good health care depends chiefly on social organization.
2. A vertical health system cannot stand by itself, but must integrate with other social activities.
3. Socioeconomic progress depends on demonstrations, under local conditions, of new methods that are scientific, efficient, economical, and practical.
4. Community use of modern knowledge lags when scientific investigation is detached from society.
5. Effective community demonstration projects promote self-help and encourage a two-way flow of professional and administrative services at a financial and technical level appropriate to the local area, with mechanisms for extending the findings.
6. Planning must build from local organization, rather than imposing central administrative practices on the periphery.
7. Professional training should be in keeping with both the needs and the resources of the area.
8. Successful social development requires a supportive political and economic framework, coupled with equitable distribution.[4]

Grant persuaded one of his former students at Peking Union Medical College, Dr. C. C. Chen (Chen Zhiqian), to join Jimmy Yen and live in Ding Xian. By 1936, when their team was driven from this district by the Japanese invasion, comprehensive health-care coverage had been extended to almost half a million people. Simple methods that focused on behavior change rather than on curative medicine had revolutionized health conditions. Detailed measurements were taken of impacts. Because health services were paid for from local resources, low-cost solutions had been developed: the annual per-capita cost of care was US$0.15.[5]

Chen conducted the first scientific surveys in China, in order to identify the extent of rural health problems. He also trained farmer-scholars to record births and deaths; vaccinate for smallpox and other infections; administer simple treatments at home, using sixteen essential and safe drugs, without displacing traditional practitioners; give talks and demonstrations on health and hygienic behavior; and maintain sanitary wells. Programs were also started for prenatal and perinatal care and for training midwives in family planning. These village health workers were prototypes for the much-publicized "barefoot doctors" that would follow (a political term introduced by the Communists, with no relevance to their actual dress or status) who revolutionized health care in China from the 1950s to the 1970s.[6]

In the 1960s, Jimmy Yen, then a wiry, dynamic septuagenarian, periodically took the train from New York City down to Baltimore to talk with us and explain again the reasons for the Communists' victory in the civil war that followed the end of World War II. He recalled how, as Mao Zedong and Chiang Kai-shek struggled for supremacy, he often argued vehemently with Chiang to build a Nationalist liberation campaign based on the Ding Xian experience. Chiang would tell him: "Calm down, Jimmy. First we'll defeat the Communists and then we'll implement your program." Jimmy would pound on the table and say: "If you don't start with the Fourfold Program to get the people behind you, the Communists will defeat you. Mao is building his guerrilla movement on these principles. He's setting up peoples' schools to do rural reconstruction; their graduates are taking the ideas of our farmer-scholars. The people are joining Mao because of how he is helping the People's Liberation Army uses slogans, such as our 'Serve the People,' to get the cooperation of the peasants; our development is growing his army. With the people behind them, the Communists will win."[7] Jimmy was right.

After the Communist victory in 1950, the impact of the Ding Xian Experiment expanded in three very different political contexts: China, Taiwan, and the Philippines.

Mao Zedong's Utilization of Ding Xian Lessons

The Ding Xian Experiment provided much of the basis for Communist China's rural transformation. Although Jimmy left China, his youngest son stayed there to work with the new Communist government, and his two older sons returned after completing studies in the United States. Principles from Ding Xian and demonstrations by other pioneers who came to China during the early Communist period from around the world (Rewi Alley from New Zealand, Norman Bethune from Canada, Dwarkanath Kotnis from India, and George Hatem from the United States) were used in the 1950s to create village schools and cooperatives as the new government consolidated its control over the Chinese countryside. The Mass Education Movement principles were used to extend literacy throughout China and were the basis of China's modern, simplified characters. The use of barefoot doctors extended health care to one-quarter of the world's population across three decades.

Communist leaders, who are often portrayed as single-mindedly top-down, in actuality showed an extraordinary willingness to experiment with social change. This partnership was essential in the beginning—before they had the power and authority that would later allow horrible repression. A practice got started, based on this pragmatism, where programs decreed by officials in Beijing were implemented and paid for at the local level. But this community-based pattern was not followed in economic and industrial developments (which were influenced by the Soviet experience where advisors were using economic development as the rationale for political influence). Communist China then grew through a succession of radical shifts in policy, flipping between chaotic political shifts in direction and economic and industrial policies that had wretched social consequences.

But in health and education, policies remained more consistent, building from the proven system of Ding Xian. Through the 1950s and 1960s, these programs were spreading steadily across—and transforming—the largest population on Earth. The results, which were improving lives, were clearly so superior to ancient patterns that people cooperated with the Communist

government, allowing it to exert more and more political control, enough so that it could enforce the devastation of the Great Leap Forward. Then, in the mid-1970s, after the cataclysmic Cultural Revolution, government priorities shifted from social policies to the economic reforms of Deng Xiaoping. China's economic growth now had the social platform from which to launch itself. With these economic resources, the funding mechanism for a human-energy based, work-point compensation system for social services collapsed. There were a few years in the 1980s, though, with the Model Counties project (chapter 21), where revived concepts from the Ding Xian Experiment were adapted to the new economic realities.

A Rural Reconstruction Approach in Taiwan

When Chiang Kai-shek retreated to Taiwan in 1950, the Nationalist Chinese took control of the island and its indigenous people, who had suffered greatly under the Japanese occupation. Then, with this Chinese control and massive financial assistance from American foreign aid, Taiwanese development began. Official development policy focused on the cities, where masses of mainland Chinese people had settled. Development was viewed as centering on industrialization, and industrialization was indeed necessary in order to give jobs to the tens of thousands of Chinese, fleeing the Communists, that had crossed over from the mainland, most of whom were literate and healthy, thanks to the Mass Education Movement. Chiang Kai-shek was taking care of his people.

But many leaders from Ding Xian also went to Taiwan; they moved into the rural areas, where they used their now-proven, comprehensive, people-based program to foster development among the indigenous people. They studied local needs and adapted the Fourfold Program of Village Work, which rapidly improved literacy, health, agriculture, and the rural economy.[8] They focused on home-based health-care initiatives and on improving the supply and variety of food. To eliminate poverty among the rural poor, they developed an export economy, in what was now called the Rural Reconstruction Movement, based on mushrooms and exotic foods grown in village homes. The Taiwanese government, which had its main focus on developing the country's industry, also supported these rural policies and financed island-wide education, health, and technological improvements. Within two generations, a broad economic revival grew from an initial expansion of agricultural production into today's rural high-tech industry.

This much-less-documented approach, which brought forward the rural segment of Taiwan, contributed to that country's emergence as one of the Asian economic tigers.

A Rural Reconstruction Approach in the Philippines

Forced out of China by the Communists, Jimmy Yen went to the Philippines. He had had deep disagreements with Chiang Kai-shek and therefore did not want to go to Taiwan. In the Philippines, drawing on friends he had developed in the United States and internationally, he launched the Philippine Rural Reconstruction Movement (PRRM) in Nueva Encija Province, where a local communist movement was resisting control by the national government. Successful development in that province led Jimmy to establish the International Institute of Rural Reconstruction (IIRR) in Cavite, thirty-nine kilometers (twenty-five miles) south of Manila, in 1960. Today, the institute has become internationally influential as a learning and innovation center, so much so that under its new president, Dr. Isaac Bekalo, its major activities have moved from the Philippines. The institute is now led from Kenya and extends the IIRR concepts worldwide. IIRR is a classic example of an international SCALE Squared center.

Over six decades, the IIRR has continued to experiment with the fourfold approach to community-based social development.[9] Training programs were developed, especially a much respected international certificate program that has trained over 1,000 professionals working in dozens of countries. A wide range of educational, health, and agricultural handbooks, practical field guides, manuals, and tool kits have been published and widely distributed, using a methodology called Writeshop that IIRR had invented over twenty years ago. The radiating influence of the IIRR's programs is considerable, in part because of their consistent efforts at training, as well as because they document their impact and help other development organizations document and package their own good practices.

Building out from their ideas, many organizations started demonstration programs in the Philippines and around the world. In the Philippines, the idea of community-based growth went to scale. The government at first tried a top-down delivery of services, then realized that it lacked both the personnel and finances for that. Instead, it authorized a series of community-based approaches, which were to be funded by both international donors and the Philippine government. Most of these donors did not understand

empowerment-based methodologies. The nongovernmental organizations often saw these programs as a chance to provide services *to the people*. The core idea of extending them through empowerment *with the people* was only partly understood.

An important lesson rests in the scattered project trials by the Filipinos (of which there are a large number of local successes launched by many nongovernmental organizations, not just the IIRR). As funding for national development shrank, the evidence of a community-based potential was repeatedly proven, so the government devolved the authority, financing, and responsibility for social activities to municipal or district levels. The thought was that if the communities have shown that they can do it, create legislation and provide funds to give them this opportunity. This devolution sometimes worked, but not always. The strength of the IIRR approach is in its engagement with people. It is tempting for nongovernmental organizations to more straightforwardly deliver service to the people, since they make more money for themselves that way (as well as often simply not understanding an alternative approach). Working with the people requires creating a partnership, learning from each other, sharing resources, and going forward together.

Lessons from Scaling Up the Ding Xian Experiment

In the Philippines, as around the world, throwing money to the people brought about the to-be-expected result. The Philippine experience in the 1990s was similar to China's and to that of most other countries where development turned from working with communities to a simpler strategy of financial grants. A surging economy creates a distraction for both itself and its processes. If social growth was a product of handing out money, then today's world would exhibit more-balanced social advancement, since the global Western development effort has distributed US$2.3 trillion in aggregated foreign aid,[10] and that sum does not tally up the much larger sums given out by national governments to their people.

Consider what Jimmy Yen and his method was able to do without much money. Advancement focused on the people, and the resource base was *of the people*. When money takes over as the driver of community-based action, not only do the people get little, since the distribution systems consume most of the funds, but the result typically is an increase in local exploitation and inequity by groups who are interested in the money, not in the people.

To improve peoples' lives, letting go of control is not the answer, nor is money. The answer is partnership—with the people.[11] But it is more than just with the people. The experiences of China, Taiwan, and the Philippines show that it also lies in iterative experimentation: ideas that grow because they are based in a local context. Money may help—indeed, it is needed in a number of enabling ways—but as understanding has grown, the answer clearly is in process: a complex process where iterative trials are informed by decisions based on evidence, using a system that grows year by year, making the behaviors of people more effective by their using what they have more efficiently, focusing their actions on what they aspire to. This iterative growth from evidence is what the Ding Xian Experiment pioneered.

That initiative had its greatest and largest-scale impact in mainland China, where it began. In one generation, across the world's largest population and, once, one of its poorest and most disease-ridden peoples, the disciplined communal system achieved community-based change in education and health, creating a foundation of human capacity that, coupled with entrepreneurial policies, made modern China's development possible.[12] With the erosion of motivation for local service in recent decades in China, and with the infatuation with economic growth that followed Deng Xiaoping, the achievements of Ding Xian have been largely forgotten. It is also easy now to forget the extreme poverty, ignorance, and isolation that dominated life in China during the first half of the twentieth century. But today's economic growth in China needed a foundation in its people. Ding Xian was a pioneering breakthrough in providing a human-capacity potential for modern China's transition. It gave a population education and health, creating workforce readiness, which contributed to China's later economic surge.

In Taiwan, the Rural Reconstruction Movement similarly was important in the early stages of the island's modernization. This movement evolved in parallel with Taiwan's more publicized industrialization. The Fourfold Program helped build capacity among the rural indigenous people in basic health care, literacy, civic capacity, and agricultural innovation, creating a platform for the government's expansion of development.

Today the Philippines has many projects, some of the world's best experts in community development, and successful demonstrations. Governmental efforts to take control in a prescriptive expansion of successful projects, however, have undermined local flexibility and self-reliance.

Nongovernmental organizations have tried to assume an enabling role in building partnerships to go to scale, but they lack the authority to create legal frameworks and conduct oversight. Thus programs continue to struggle against obstacles that would be easily overcome if each member of a three-way partnership performed the role best suited to it.

Many who have strong biases in favor of grassroots action believe that communities can develop best when governments get out of the way. But governments are essential; moreover, they are always present in some form and hence must be dealt with. In countries where the government is not providing an enabling environment, many nongovernmental agencies and experts make a point of avoiding links with that government. This is a mistake, because nongovernmental agencies lack the mandate to create policy. Policy not only is the glue that holds relationships together (along with religion), but it can also be turned toward increasingly productive support, *because both people and governments want forward-moving progress*.

We have repeatedly seen Jimmy Yen's credo (noted at the front of this chapter) on the walls of nongovernmental organizations around the world, as though this is a magic formula. It is an adroit summation of process, and it can magically gather human energies, but it is incomplete. It is like a silver bullet without the gun to shoot it; or, more accurately, similar to lifting one paragraph from any larger text, the inspiring quotation from Jimmy is like aiming for change without both the bullet and the gun.

Nongovernmental agencies cannot replace governments: they cannot pass laws, establish systems or institutions, or enforce legal responsibility. The experiences in China and the Philippines clearly demonstrate the vital role of a partnership with government (even when it might be a maligned Communist government). In China, governmental support of local action brought a nationwide provision of education and health care. When such support ceased during the Cultural Revolution, forward momentum abruptly stopped. China is at increasing risk today, because its policies coast on a social-development foundation from an earlier generation. A country's growth hinges on a lot more than economics. Today, China's economic momentum increases inequity and thereby undermines the country's social foundation. In the Philippines, despite a cavalcade of good pilot projects, without appropriate governmental support, development has had little success in going to scale.

Jimmy Yen's decades of experimentation have shown that community capacity and self-reliance are fragile but essential components. When participants ignore or forget these basic principles, community leadership can all too easily become community manipulation. Jimmy Yen's credo, when understood in the context of his work, makes it clear that the process requires mutual cooperation, year after year, trying and then improving what works best at the community level. Done in this contextual manner, as in the villages of Ding Xian, development can start small and grow to enormous scale when an iterative process is sustained.

8

Abraham Lincoln

Setting America's Modernization in Motion

The story of Abraham Lincoln has a not-often-discussed side. Much is said about his leadership during the Civil War and in the abolition of slavery; some mention is also made about how the Industrial Revolution took off during his administration and how cities surged in population numbers. But what is missed in presenting these roles is how Abraham Lincoln also led an effort building community life in the United States.

Shaping Lincoln's larger leadership view was his intent to create America as a whole nation. A vision of unity brought together the war, slavery, industry, and a community he never forgot—rural America, and the hardscrabble life where he grew up—shown daily in the anecdotes he told to ground his other wide-ranging actions. While cities were bustling and people were flooding into them, Lincoln remembered the America where 80% of the people lived: the communities.[1] He joined the nation under one economy, yet he had to create a national currency to do so. A central federal government became dominant, although it required a war for this to happen. He inherited a divided country, but he left it unified. In terms of bringing national unity to the country, Lincoln is the president who created what we now know as modern America.

Abraham Lincoln was a boy who rose to leadership by creating opportunities for himself. He studied, traveled, and invested with uncommon initiative. All of these began in a small-community way; from that venue he learned about larger communities, and on those achievements he stepped onto the national stage. Small-community thinking was the foundation for his rise to national prominence. Behind his efforts in preserving the union and integrating slaves as full citizens is a story of Lincoln enriching the

quality of life in places and for people such as those in which and with whom he had grown up.

America at that time was a land of soil-scratching farmers, where diarrhea was the number-one killer (a condition that, when found in such high prevalence, is evidence of a land of human filth). Towns small and large in Lincoln's day, as well as the farms, were unhealthy places. A statistic of the Civil War, a place of death usually remembered for a different carnage, is that among the recruits there were 1,739,135 cases of diarrhea; 1,300,000 cases of malaria; and 44,558 cases of typhoid.[2] Life expectancy in 1860 was thirty-seven years, half of what it is today. A quarter of the population was illiterate; outside the cities and New England, often half of a community's population could be illiterate. The primary business medium was barter; while money existed, there was no way to move it safely across the country, creating a barrier to economic advancement for poor people.

But, after Lincoln's administration, modernization quickly crossed the American nation. It resulted from many drivers; most, such as industrialization, were functions of the period. But adding engines of societal growth to nation building was achieved by the integration of human differences. Arguably, Abraham Lincoln's greatest leadership trait was his ability to bring differences together (i.e., partnership). He gathered political foes into his cabinet, individuals who otherwise could have fractured the nation and hindered his ability to lead.[3] From the community that was his cabinet, he then pointed this collective toward creating one nation.

To get national unity among the country's differences, a shared vision was needed. Much is said about the way Lincoln framed slavery as being against the equality of all people. A parallel example of this genius is shown in his creating a shared national celebration, one that was pan-religious and apolitical, gathering ethnicities together and brilliantly using the inclusiveness of family as a mode of unity. In 1863, Lincoln ordained the first feast of Thanksgiving, invoking Divine protection and proclaiming: "Order has been maintained, the laws have been respected and obeyed, and harmony has prevailed everywhere except in the theatre of military conflict . . . acknowledged as with one heart and one voice by the whole American people."[4] From America's founding, many have held up the concept of "one country under God." Lincoln's insight gathered Americans together by acknowledging that in feasting around a dining table, the people

of a nation of diversity came together. Ever since, as his heirs, we have each year bonded anew with this now-classic American holiday.

In 1860, Americans had mixed loyalties. There were thousands of people who could still remember living not in states, but in colonies of England, and there were thousands more who saw themselves as Chinese, African, German, Irish—and, of course, those native to the Americas. From the relics of a series of separated colonies, Abraham Lincoln brought together political units that, at the outset, had greater autonomy than they would have at the end. Entering office with multiple dynamics that were fracturing the land further—not just the dynamic of slavery—he used these as opportunities to create a nation.

In the 1850s, the United States was far from being a world power in any sphere. Americans today tend to hold a triumphal retrospective. But one indicator of the country's low status was that the British government paid a higher hardship allowance to its diplomats posted in mud- and malaria-ridden Washington, DC, than to its diplomats in Calcutta. In this context of America being what we would now call a third-world country, Lincoln launched a cluster of community development acts that worked in concert, creating reinforcing feedback loops to strengthen community capacity and connect communities: industrialization, education, transportation, land ownership, agriculture, information, and finance.

Industrialization

Industrialization, at its highest level, is not manufacturing, but releasing the energies of people in technological innovation. War demanded materiel, and the entrepreneurial factories of the North seized this opportunity, expanding production from clothing, to food supplies, to transport—and to making armaments. They were able to do so because the former reticence to enact industrial policy was removed. With the Southern vote now out of the US Congress, Lincoln's Republican agenda passed policies of entrepreneurship far beyond manufacturing. His Second Annual Message to Congress (now termed the State of the Union Address) called for *nationwide* advancement, particularly for a transcontinental railroad, canals, an Atlantic–Pacific telegraph, a uniform national currency, and the development of mineral deposits in the West. This is much more than war readiness; the war was in the South, but in this address a lot of his attention was

to the West. Lincoln signaled at the outset of his presidency that he was going to jump-start modernity.

Other parts of the world in the mid-nineteenth century also had skilled people, open land, innovation, abundant natural resources, and large external investment. Industrial growth was taking place in many countries. Natural resources were being consumed in such countries at home and in their colonies (when they had them). Their populations were growing rapidly; migration from rural areas to cities was also under way. America was not alone in the availability of low-cost labor to support its industrialization. War, though, offered Lincoln the chance to accelerate industrial production. It created demand at a scale and urgency then possessed by no other country, and that quantitative demand prompted innovators to bring forward new ideas and qualitative changes. As a result, America overtook England, France, and China, which (in differing developmental ways) were ahead at the time, and outpaced Canada, Brazil, Russia, Japan, and Australia, which were also launching intentional development and had natural-resource potentials for building their economies.

Education

From its founding, America had a deep commitment to education. Lincoln's personal ascent is part of the American educational legend. As he said at one point, "I could read, write, and cipher to the Rule of Three." From these basics, over a childhood that had allowed him about one year's worth of total schooling, he made education a priority, saying, in 1832: "On the subject of education . . . I view it as the most important subject which we as a people can be engaged in. That every man may receive at least a moderate schooling."[5] In the America of 1850, 47% of the children were in school: 50% of the boys and 45% of the girls.[6]

During his presidency, Lincoln was not able to institutionalize his long-held priority of education for all; it was not until 1867, two years after his death, that Congress established the first national Department of Education, a cabinet-level post for "the organization and management of school systems and management of teaching as shall aid the people of the United States."[7] Nonetheless, by the end of the Civil War, all states except three had compulsory public-education laws, though the reality of schools being open and children being in class was an option mostly in cities.

Lincoln's support of the 1862 Land-Grant Colleges Act (the Morrill Act) opened higher education across economic levels in every state. The concept was a funding formula: each state received 30,000 acres of federal land for every US congressman and senator that state had. The land was then to be sold, and the money received was to be used so every state could have a public university. Until this federal action, higher education had been a privilege of the wealthy; colleges were mostly private institutions. It would take two more generations, well into the twentieth century, before most European countries made low-cost higher education available. But with the Morrill Act, universities opened across the United States whose purpose was applied and technical educations (not the arts and humanities, which were the tradition in what would later be called the Ivy League).

Transportation

The war prompted Lincoln to invest in transportation. Lincoln's Second Annual Message to Congress emphasized roads, canals, and railroads. But Lincoln had a lifelong commitment to transportation, a cause he had championed in Illinois as well as in his single term in the US House of Representatives. His earliest endeavors to make a living were on riverboats on the Ohio, Illinois, and Mississippi Rivers. His ingenuity in getting a riverboat off a dam on the Sangamon River got him a paying job in a store in New Salem, Illinois. (The boat was taking on water, so to get it off the dam he unloaded the hogs, borrowed a drill, rolled barrels to one end to tilt the boat, and made a hole in the hull, at which point the water drained out of the hole.) Lincoln was fascinated by transport; he is the only president ever to earn a patent: No. 6469, for a device to lift boats off sandbars.

In his first year as president, he pressed for passage of the Pacific Railroad Act, an idea that was proposed in Congress twice over the prior six years. Now, with the war looming and strong presidential support, it passed. This occurred in an age before the government had substantial financial resources, so funding came by giving tracts of government land to railroad developers: 175 million acres, more than one-tenth of the then United States. What resulted (aside from great fortunes for the railroads, many of which had politicians enjoying a portion of the receipts) was a connection from the Missouri River (and, hence, the Mississippi Valley and its rail and water transportation networks) to California. Seven years

after the authorization of the transcontinental railroad, trains were opening the American West. Had Lincoln not been assassinated, at the end of his second term he could have ridden a train from the Atlantic Ocean to the Pacific.

Land Ownership

Lincoln knew the struggles of making a livelihood on small parcels of land; indeed, there is evidence that he pointedly left the land as soon as possible, while, in his political career, capitalizing on a farm identity as a rail-splitter. Lincoln's family history had been an ever-westward search for better land for farming. Against this background, it is fitting that he sponsored and then signed the Homestead Act on May 20, 1862. The Homestead Act allowed almost any American to own land if he *or she* was willing to move to open, uninhabited land. Any citizen (man, woman, Negro—even intended citizen) could claim 160 acres of land; the only restriction being that the person could not have borne arms against the US government.

But the Homestead Act contained an outrageous fallacy: it gave away land that in many instances the government had not legally acquired—land stolen from the Native Americans. And it is noteworthy that, at the same time Lincoln was fighting to free the slaves, he was turning a blind eye to the plight of the land's first peoples—demonstrated also by his inaction in 1864, when troops in Colorado massacred nearly 200 Native Americans, the majority of whom were women and children, at the Battle of Sand Creek.

Lincoln's larger intent in the Homestead Act was getting people to own and live on the land, as the government did not want people grabbing the land and selling it off. So, to possess their land, claimants had to fulfill three actions: filing an application; improving the land for five years; and, after holding and developing the land, filing a deed of title. Improvements to the land had to include both evidence of its use and construction of a "12×14 dwelling" (an omission was whether the 12×14 was measured in inches or feet, and indeed some took advantage of that). In an era when the government was asking citizens to die to hold the country together, with the Homestead Act the government was offering all a functional home site for their futures (an opportunity extended even to Native Americans, if they would abide by the white man's rules). Throughout the war, Lincoln often spoke of this opportunity as he worked to "lift up the broken-

hearted," reminding people that everyone had the potential of a home and a future for their family.

Agriculture

From his upbringing, Lincoln understood that farmers needed support. Until then, support came mostly as one farmer informally shared his experiences with another, and farmers collectively acted when a job was too big for an individual. Help is needed, though, as farming (perhaps second only to seafaring) is a human occupation subject to a macrocosm of uncontrollable dynamics. On becoming president, Lincoln quickly enacted several agricultural initiatives. Access to land was not enough. In March 1862, his administration created the Department of Agriculture. The department was part of his cabinet, and his pet name for it was "the people's department." In the mercurial swirl of weather, commodity prices, and lonely toil, Lincoln knew that farmers needed support from the top (and also that they voted).

As the war was winding down, Lincoln's administration looked for ways to reach out to farmers—especially in the South, where "federal government" was synonymous with "enemy"—and it came up with the idea of a nongovernmental people's organization. A year after Lincoln's death, the Grange was launched (its formal name is the National Grange of the Order of Patrons of Husbandry). Paid agents organized local chapters. Each chapter then started a program to teach people how to live better off their land. Women as well as men could join (in each Grange, several elected positions were always held by women). Indeed, anyone, regardless of age, could join, the admission criterion being whether they could manage a plow. Rural livelihood quickly became the focus of the Grange, much more so than pure agriculture, so it is no surprise that it would soon be a lobbying group and, over the following decades, had promoted the creation of cooperatives, the Farm Credit System, and even Rural Free Delivery by the US Post Office.

Information

Robert E. Lee may have been the master of the battles, but Lincoln's mastery of the flow of information gave him control over the war, as well as a connection to the people. During his administration he spent more time in the telegraph office across the street from the White House than in

any other single place outside the White House. Often he made the trip to the telegraph office three times each day, crossing the lawn with a gray plaid woolen shawl wrapped around his shoulders and settling his lanky frame into a chair to read the stack of waiting messages. It was while sitting in that telegraph office, waiting for other messages, that Lincoln drafted the Emancipation Proclamation.[8]

Recognizing the role that information could play in people's lives, Lincoln embraced a form of electronic technology. The year he entered office, the Pony Express was considered an innovation. But the Pony Express, though imbued with romance, benefited only a few and did not fundamentally change the flow of information. Lincoln's purpose was the connection of people, and he wanted to expand communications. In 1861, only months into his administration, the first transcontinental telegraph line was completed, supplanting the Pony Express. Three years before he came into office, a transatlantic telegraph cable had been installed (Queen Victoria used it to congratulate President Buchannan), but after just three months, with too high an amperage being sent down the line, the cable burned out. Lincoln actively supported construction of a new, more robust cable, which went into service the year after his death. But throughout his administration, with his interest in the telegraph, high-speed communications was a priority. Lincoln was arguably America's first email-junky president.

But in terms of people's daily lives, his priority was a swift, reliable postal service. First there was the introduction of uniform rates of postage, then three classes of mail, and then free home delivery in cities. (Postmaster General Montgomery Blair was a cabinet member Lincoln knew he could count on; and Blair appreciated the reciprocal support his department got.) Postal delivery became faster as employees sorted mail in special postal cars on trains, picking up postal sacks from hooks and throwing sacks with sorted mail out onto platforms as trains sped through small stations without stopping. And to "tweet" simple messages person to person, his administration inaugurated the penny postcard.

Both for his political purposes and to build his support base, Lincoln worked the media (the media in that day being solely newspapers). Before he became president, he personally had major ownership in two newspapers (*Old Soldier*, to endear him with the Whig Party, and the *Illinois Staats-Anzeiger*, to become known to German-language voters). Prior to being elected as president, his primary mode of using other newspapers was to

write anonymous articles, attacking his rivals or praising himself. (One set of articles was penned by his wife, using the name "Rebecca," which, when her identity came known, resulted in Lincoln being challenged to a duel. When the two men met on the dueling ground, his challenger withdrew, as long-armed Lincoln had chosen broadswords as weapons.) Following the debates with Stephen Douglas, in order to get his arguments known on the East Coast, where voter support was essential to become president, Lincoln assembled a scrapbook of positive articles about the debates, self-published it, and distributed 30,000 copies. Once he became president, Lincoln wanted his side of stories to appear in every newspaper. To gain control over the papers, his number-one use of patronage was to give port inspectorships, revenue collectorships, and even ambassadorial posts to key newspaper owners or editors.[9]

Finance

A war was going on, so how was the government to pay for it? Immediately on assuming office, Lincoln created the first national income tax: the Revenue Act of 1861, which put a flat 3% tax on income above what today would be US$20,000 (ultimately making the federal government the primary economic force in America). By introducing the governmental option of an income tax, Lincoln created a legacy that would have implications perhaps as great as holding the country together.

Taxation supported the government's work, but people needed money, too. Life was being disrupted; Lincoln realized that a growth in economic opportunity would make people feel that, even in the surge of war, there was hope for their futures. His administration crafted three initiatives that restructured both the movement and management of money to help common people: a national banking system, a standard currency (the "greenback"), and the postal money order.

To get the money he needed as war debts mounted, Lincoln recognized that the financial system had to change; finances would not improve simply by printing more money. Money unsecured by collateral would lead to its devaluation, and inflation would undermine his government (as occurred when the Confederacy used the money-printing approach). The National Banking Act of 1863 initiated a stable national currency, where each issuing bank could print only an amount of bills in proportion to the capital it had on deposit with the comptroller of the US Treasury. Further

control over the abilities of banks to issue money followed with the National Banking Act of 1864, which created the first national banks (previously there had been only state-issued bank charters). With these two acts, paper money now had a legal structure as well as capital reserves. It was an adroit move: a national currency came into place by using capital held by banks, not by the government. Under Lincoln, it can easily be argued, the US government restructured itself as a business (as well as becoming the biggest business in the nation by increasing its revenue through taxation).

Similarly, to help ordinary people, the US Post Office stepped in with a banking function. In an era when most communities did not have a bank, Lincoln's government authorized post offices to issue money orders, supporting the safe transfer of small sums between towns and across state boundaries (and also reducing mail robberies, as currencies had been sent by letter until then). Money orders gave ordinary citizens a way to conduct financial transactions in another community, a move that especially helped rural people at a time when barter was still common. Another money-transfer role based in post offices also grew with the support of Postmaster General Montgomery Blair. He allowed postage stamps to be used as currency; thus a parallel currency to that of the US Treasury was created. To make the small slips of paper durable in peoples' pockets, the US Post Office allowed companies to wrap each stamp in a circular disk, turning the stamp into a coin. Similar to getting banks to capitalize the national currency, in this instance the government used the businesses' financing to make the disks that held the stamps, allowing firms to put their corporate names on the back as advertisement: Drake's Plantation Bitters, Aerated Bread Company, Cathartic Pills, and Lord & Taylor.[10]

Lincoln's administration also initiated financial-security policies, including several to support the growth of corporations (as opposed to family businesses) by shielding shareholders from direct legal liability. These measures opened up investment, commercial risk taking, and experimentation. Regrettably, as actions over the following decades further shielded corporations, what had started as a benefit became an increasingly intractable problem, contributing to inequities in America as corporations took on liabilities for which they could not be sued, and also received the protection offered to individuals.[11] (By the twenty-first century, with a series of US Supreme Court decisions, this corporate enabling had escalated,

so their influence over the vote could manipulate the people's control of government.)

We do not lionize Lincoln's leadership by lifting him up. He sometimes used questionable means, and he very much manipulated public opinion. As a lawyer, he was well aware that at times he flaunted the law, such as suspending habeas corpus during the Civil War. He also had a tawdry side: he made "darky" jokes in private while he pursued abolition in public, and his preferred solution for dealing with "the negroes" was to send them back to Africa. His response to the land's native citizens was to ignore them, and his record is, at best, mixed on supporting women.

The point here, however, is to focus on how Lincoln's initiatives strengthened the country by using the government to create a context that supported community action. He viewed government as a means of enabling ordinary people. He worked to create an environment in which communities could evolve their own solutions. He did not give gifts or initiate special services (actions that progressives today often promote). Instead, he tried to transition toward making the government a helping force.

Faced with daunting challenges—elected by a minority of voters, with the country fragmented and likely to crumble further—Lincoln responded not by seeking to consolidate his own position, but by empowering those around him to learn new, larger, and more effective roles, which the government enabled. As commander-in-chief, Lincoln could have told his first series of incompetent generals what to do, thereby moving control of the war to the White House. Instead, he supported each general for as long as that individual's defeats permitted, trying to help him improve. When members of his cabinet were trapped by the administrative myopia of their departments, Lincoln fed them information gathered from his wide network of information contacts, expanding their vision, engaging their creativity, using his homespun stories (which are now legend) to press cabinet members to strengthen communities, *rather than their own offices*. To empower Union soldiers, he ignored the military hierarchy and traveled often to the camps, walking among the men and sharing stories, seeking to strengthen both their confidence in their roles and their sense that their sacrifices were appreciated.[12]

The message from Lincoln is that the top-down matters. Learn how to use it, and the more this skill is practiced, the more the enabling that results

from it will become the context for community capacity (with the emphasis being on enablement, rather than on control). The top-down is more than the government: it is the media, religion, big business, and international influences. Lincoln saw the particular role of government as a tool to create a nation, a unity from what had been separate states and communities. The concept of gathering enabling policies and practices is especially important in the present global age, in order to make Earth's socio-econo-biosphere help local communities, where communities, if left alone, each proceed in self-serving ways.

Change today is thrust onto all of us. For those of us who play minor roles in small communities, Lincoln's platform is unattainable, but his style sets an example: faced with calamity, he sought to make colleagues and his countrymen stronger. He did not distance himself, but embraced those in his cabinet and among his countrymen who tried to leave. "With malice toward none, with charity to all," he enjoined in his Second Inaugural Address, "to do all which may achieve a *just and lasting* peace among ourselves and with all nations" [italics added]. In the prosaic places each of us works in, if our objective is to create stronger communities, we, too, must embrace and empower our partners. Change was thrust onto Lincoln. He steered that change in a direction that gathered together difference and grew communities.

9

An Evolving Balance between People and Nature

The Adirondacks, New York

Around the world, many people know the Adirondacks chiefly as home to the Lake Placid Winter Olympics in 1932 and 1980. Most are unaware that these two attention-catching events, with their intensive human impact, took place inside a nature preserve. New York State's Adirondack Park is America's premier example of integrating people and nature. It is also the most successful preserve at encouraging diverse, sustainable human uses. On the one side, nature is protected. On the other, the quality of people's lives is advanced. No project in the United States has done both better, across as long a period. Many people think of Yellowstone as the crown jewel of America's national parks, but in cost-effective management, Adirondack Park is the enduring, 130-year example. In the Adirondacks, nature grows ever stronger, and peoples' engagement becomes greater.

Established in 1885, only ten years after Yellowstone, the 6-million-acre Adirondack Park (its area covers most of upper New York State) embodies a profoundly different alternative to the land-conservation strategy of the better-known US national park system. There, the primary management philosophy was to exclude people, and only now moves uncomfortably toward how to include the citizens' voices.

Physically, Adirondack Park is the largest protected area in America's lower forty-eight states, greater in size than the combined acreages of Yellowstone, Glacier, Olympic, and Grand Canyon National Parks. The park continues to grow in size, and one reason it can do so is that its operating costs (whether calculated by the number of acres or the number of visitors) are less than one-third those of the national park model. Adirondack Park

encompasses the whole of the upper New York State watershed—few protected areas are fortunate enough to think ecosystem wide. It has a geographic area as large as Belgium and accommodates a human population of 130,000 year-round residents, 200,000 seasonal residents, and 3 million annual visitors, balancing multiple objectives, economic bases, leadership agencies, and landowners.

Its size allows it to absorb a considerable human impact. And with size comes flexibility, allowing a diffuse management system, where areas that are environmentally critical can be tightly protected and areas that can accommodate human use permit it. Flexibility and diversity are what give strength in nature, and these principles also apply to managing nature. Nature is not a science project or an economic platform—its purpose is always to achieve multiple balances. The key to Adirondack Park's success is in its being based on flexibility and diversity. Management there is far from perfect; fifteen years ago, an article described its management system as "a mess."[1] Yet its remarkable—perhaps unique—management system has brought together zealous proponents of private rights and equally zealous advocates of public conservation to work out their differing priorities. The management system adapts to the complexities of financing, politics, and peoples' constant life needs, in addition to the complex environment. The strength of this management system—like nature itself—is that it is constantly evolving.

Most land preserves in the world separate people from wilderness. Advancing the quality of human life is usually viewed as damaging nature. In the Adirondacks, large numbers of people live and work inside the park; in fact, half of the land is privately owned, yet all the land is seen as a state park. The Adirondack approach brings together government and private landowners to share the larger task, using citizens as participants in management, rather than just as visitors to be managed. Such management is unruly, to be sure—almost every group in the Adirondacks believes it knows a better way to manage the park than the compromises that typically result. But given the park's size, its ability to accommodate people, its costs, its promotion of sustainable livelihoods, and its ever-rising record of conservation protection that matches or surpasses that of any other park in America, it is hard not to conclude that its management approach is a success.

People inside Adirondack Park follow park rules, even when they own the land, and that controls their likelihood to exploit the land. The always-

present park atmosphere reminds people that their natural heritage is a legacy from earlier generations, and that it is an inheritance to be passed on. Nature is not a product to be consumed by those who today happen to "own" the land. People must absorb the concept of taking a long view—where actions must slow the drive toward immediate profit. For 130 years, public interests and private desires have tugged and pushed in a creative struggle. Neither side ever wins—and that frustrates both.

Although the United States has other centuries-old examples of environmental stewardship based on people (the Menominee tribe and the Coon Creek watershed in Wisconsin, extensive protected lands in parallel with multigenerational farms in Appalachia, and Amish communities practicing collaborative land management for bigger, enduring goals), no other large, formally constituted conservation entity allows so many sustainable uses for the land. Other sizeable, multiuse conservation efforts are worth mentioning, including recent innovations on national forest lands, New Jersey's Pine Barrens Preserve, the Lake Tahoe Regional Plan, and the Yellowstone to Yukon Conservation Initiative. Yet none equals Adirondack Park in its long history of advancing the well-being of people while preserving the environment. In a parallel to Adirondack Park's way of growing its environmental stewardship, New York City has also taken remarkable steps forward while still accommodating human impact.[2]

In 1885, Americans were traveling westward, and the eastern part of the country was then more domesticated than it is today. Fields stretched almost continuously from Maine to Florida. The woodland elk, bison, and wolves were gone, never to return, and white-tailed deer, wild turkeys, and foxes had been driven into the few small remaining pockets of what had been the world's most extensive temperate forest.[3] Alarmed by potential threats to the environment in the West, the federal government established Yellowstone and Yosemite National Parks. But in the intensively settled East, the Adirondacks remained as a forested island on a montane plateau, surrounded by farms in an East Coast almost denuded of forest, with this remnant providing an important source of water for the Hudson River transportation system, including the then newly constructed Erie Canal. This watershed-protection rationale for transport, as well as the interests of wealthy people in New York City who were starting to vacation in the Adirondacks, spurred a conservation agenda to create Adirondack State Park.

The central feature of the park is that state government owns half the land and private citizens own the other half. Protection of the government's land is stricter than in any other preserve in America (and perhaps the world). Article Fourteen of the New York State Constitution designates state land within Adirondack Park as "forever wild"; to change a boundary within this designation requires two separate votes of the state legislature in successive election periods. While the state gradually expands its half by buying sites that are ecologically sensitive and therefore best kept strictly preserved and never developed—especially wetlands, areas of old-growth forest, and places at high elevations—it also takes the view that private land is a part of the park that adds cost efficiencies and contributes in important ways to the people's lifestyle there. Through their private ownership, people create a much larger protected area and more substantial funding base to support the park's overall purpose.

Innovations in Management

No visionary founding master plan created this public/private innovation. Its genius was accidental. Expediency and circumstance pushed this design into its revolutionary management paradigm. Today, two separate agencies oversee the two types of land-use management. Some see this arrangement as a half-baked compromise; we view it as a positive system of checks and balances. Aside from bringing together competing forces, it also demonstrates an iterative evolution of design through partnership.

The two agencies are autonomous; neither reports to the other. Instead, issue by issue, they must work together. Since the park's inception, the state's Department of Environmental Conservation has incrementally refined a zonal land-use plan that specifies what uses are permitted on the government-owned, forever-wild land. The Adirondack Park Agency—an independent, appointed commission consisting of private citizens—sets guidelines for private land use and, in regular public meetings, reviews petitions for local adjustments case by case. The Park Agency cannot tell people what they must do, but it can—and does—tell people what they cannot do.

The result is a system in dynamic tension. The government land is to be forever wild; that much is clear. But with half the land in private ownership and seven major types of land use allowed, diverse economic forces are constantly challenging the management guidelines with requests for exceptions. Examples of these private-land guidelines are that shorelines

of the park's 2,800 lakes must be buffered with trees at least 100 feet (30 meters) back; road building is restricted to current levels; timber harvesting must not damage streams or cause soil erosion; towns cannot expand beyond their existing limits; billboards are not allowed anywhere; and lighted signs are permitted only on buildings. Within these principles, a patchwork of land uses has grown; this is a complex adaptive system where the emerging design is driven by principles.

An important feature in this is the park's low operating cost. Nature protection is meant to endure, and key to that is keeping it affordable, a point noteworthy in an era when nature preserves worldwide are under financial stress. Whether constituted at a national or state level, a traditional park is expensive, with transportation infrastructures and communications networks, and a small army of rangers and administrators to oversee not only what happens within the park, but also actions from the forces displaced by it. Costs attend both creating the new entity and the elimination of the old. In the Adirondacks, costs remain low because systems, townships, and ownerships already in place were not dismantled, and the added conservation administrative layer is thin (also found in the case of conservation in Tibet; chapter 20) In the Adirondacks, people living inside the park monitor and report on compliance with regulations, eliminating much of the need for wardens and their attendant administrative system.

The third innovation is the diversity of Adirondack Park's economic base. Many nature preserves allow the sustainable harvesting of resources (limits on hunting and the collection of medicinal plants, selective timber cutting), and these activities increasingly provide local employment, typically in connection with ecotourism. By having people inside it who are always figuring out new options, over the decades, Adirondack Park has built up a much larger array of seven major activity types that offer diverse economic opportunities:

1. *Natural-resource harvesting*. Four natural resources have been or are being extracted: trees (for pulp and timber), minerals (garnets, iron, titanium), energy (hydroelectric generation), and animals (fishing, trapping, and hunting).
2. *Other uses of natural resources*. Ways to use the wilderness are evolving all the time: in spring, whitewater rafting, canoeing, hiking, and wildflower viewing; in the summer, camping, lake canoeing, biking,

climbing, birding, and hiking; in the autumn, foliage viewing and hunting; and in the winter, ice climbing, snowshoeing, and every sport in the Winter Olympic repertoire.

3. *Education*. Adirondack Park contains schools at every level: primary, secondary, and higher education. In addition, there are special training programs, wilderness education in many forms, and a training campus for winter sports.
4. *Health and retirement*. A century ago, sanatoriums drew tuberculosis patients to "take the cure" in the Adirondacks' clean environment. Now people move into the park to retire. As support facilities inside the park have matured, medical research and long-term medical care centers have been added.
5. *Penal correction*. State prisons inside the park provide well-paid, year-round employment for people lacking a higher education. Locating penitentiaries inside a wilderness area (with bears outside the fence) appears to reduce incentives for escape by predominantly urban inmates.
6. *Economic incubation*. As recreation, education, and health facilities have grown and the variety of residents has increased, so has the need for real-time, all-the-time communications, thus adding to the attractiveness of the Adirondacks as a base for professionals, writers, and innovative companies.
7. *Governmental sector*. In most parks, government jobs account for most or even all employment; in the Adirondacks, the share is only 40%. When jobs in schools, prisons, and the Olympic facilities are subtracted from this figure, governmental and park-related jobs account for only 20% of employment in the area.[4] This low percentage prevents the formation of a governmental culture of prescriptive management that has blocked innovation in parks such as Yellowstone.[5]

People living inside the park foster local ownership of businesses. Many people start working for someone else and then launch their own enterprises and make them grow. A frequent pattern is for people to start as guides, take in a few clients as boarders, and then establish bed-and-breakfasts. A consortium of locally owned businesses supports such entrepreneurship and makes it difficult for large corporations to open franchises (such as an attempt by Walmart to open a store in Lake Placid). Local owner-

ship fosters an entrepreneurial spirit. Proprietors are onsite, thinking and experimenting, and continually expanding economic niches.

The Adirondack Park example suggests that people are willing to experience a measure of economic hardship to live in an environmentally pleasing area. Seasonal unemployment in the Adirondacks is double that in the state as a whole, yet people who could move away choose to stay. The quality of life associated with being inside a nature preserve seems to hold them, despite the economic pull outside. Such dedication creates economic resilience.[6]

Operation of the Four Principles

Three-Way Partnerships

A singular feature of Adirondack Park is the absence of a formal central leader or hierarchy. One assessment cited it as the park's primary problem.[7] But in our view, the leadership void is a strength. It forces partnerships and avoids the imperialism of control. In Adirondack Park, there are plenty of leaders, but a sole person or agency is not in control. The traditional role of park superintendent is filled by multiple agencies that must be negotiated with, albeit cumbersomely. New York's Department of Environmental Conservation administers the state land, and the Adirondack Park Agency defines the private-land uses. These are supported by a mosaic of state institutions, none of which controls another: the Department of Transportation fashions the travel corridors, the Department of Economic Development promotes economic well-being in the area, and other departments, such as Health and Education, have a parallel authority. In this mix, 105 autonomous townships vie for position, as do a rising number of energetic and sometimes well-financed nongovernmental groups with specific agendas, the International Olympics Commission, and many civic groups.

People with different interests therefore espouse conflicting viewpoints, with a passion often bordering on religious zeal, but they keep talking. Perhaps knowing that they share something special builds commonality. But one thing is certain: an absence of control forces partnerships. People regularly stand up and speak either "as a resident of the park" or "on behalf of the local people." Up to the 1970s, meetings, proposals, and all decisions originated in the state capital, Albany; now they come increasingly from inside the park. Under this system, each sector must daily balance its priorities with the needs of other sectors, and each decision is examined and justified on its own merits.[8]

Evidence-Based Decision-Making

The park was created in 1885 with a twofold objective: to protect as much territory as possible and keep it forever wild, and to deal in the least alienating way with private landowners. Separated managements along these dual tracks continued for eighty years. On private lands, at first there was virtually no regulation; when the government believed conservation management was needed in certain areas, instead of negotiating it simply purchased the land. Such a rigid separation of conservation and development is common in many parts of the world. But by the 1960s, with 60 million people within one day's drive of the park, evidence of their impact started to change these practices, most notably in the adjacent Lake George area. The Adirondacks offered a large, secure base for second-home development. Developers began reaping huge profits by subdividing holdings around the lakes into small lots. A dialogue arose among citizens, experts, and officials, and the various parties went to Governor Nelson Rockefeller. In response to a movement to form a national park, where a core area would be purchased by the government and people moved off the land, the governor created a commission to look into the issue.

The Temporary Study Commission on the Future of the Adirondacks worked through the mid-1960s. More than most commissions of that era, which tended to hold hearings and then draft plans based on solicited opinions, the Temporary Study Commission built from data, gathering information on the rate of second-home development and on the ability of the land to support it. The commission produced two sets of proposals. One recommended expanding preserve boundaries to approximate those of the whole ecosystem; this was not particularly controversial. A second set of proposals suggested a regional zoning, or regulation, of private lands consistent with their ability to sustain development without sacrificing conservation goals. This park-wide zoning of private lands fueled controversy and resentments that continue today.

Since then, the increasing use of data by each side in the controversy has led to a greater understanding of the issues. Evidence has increasingly become the means of measuring compromise, where people find midpoints they can live with. Facts bridge factions. The acrimonious crossfires of accusations and opinions that marked hearings in the first decade after the commission's findings have subsided as each side has learned that it is

more likely to succeed when it bases its arguments on evidence, rather than on impassioned rhetoric.

Changing Behaviors

Most conservation tends to be a top-down. When starting to form a preserve, officials essentially tell people, "Your land is going to be taken away, and you'll have to figure out for yourself new ways of living." But in the Adirondacks, behaviors evolved instead of being prescribed. The Adirondack Park Agency, as officials usually do, first tried the imposition approach, but people then organized and pointed out that the agency had no such authority. Neither side could enforce its will on the other; both had to change. For the people, regulation initially reduced opportunities, but they learned to work within them, and broadening economic possibilities then engaged them. The Park Agency was frustrated when it tried to create rules on its own, but when it incorporated peoples' priorities into them, it was possible to make and enforce these regulations with its limited staff and budget.

The park's history with the timber industry illustrates how what are usually hostile bedfellows can change their attitudes and work together. Since the "forever wild" government forests are not available for harvest, tree cutting can occur only on private land. With the core protected, environmental groups, normally in an adversarial position to the timber industry, have made it their priority on the private forests to encourage selective harvesting rather than clear cutting for housing developments. As a consequence, they work with timber companies on a system of conservation easements, which include selling developmental and, at times, recreational rights to the land, thus lowering property-tax rates. This allows timber land to be more productive and has controlled second-home development.

Other priorities also play a role—one being public relations. Thus the timber companies, though eligible for lower taxes, often pay higher commercial rates so that communities will continue other timber-friendly policies. To recoup the added tax costs, the companies create hunting camps, which they rent out, because the conservation practices within the park and its adjacent public lands improve hunting success. Hunting, in turn, promotes economic activity in the area's towns, intensifying the synergy among communities, conservation interests, and corporations.

Changing behaviors evolve iteratively when driven by priorities rather than by power. Conflict does not disappear, but progress results as conflicting parties are forced into a dialogue. The dialogue, not the structure, is key.

Building from Successes

This pattern of reciprocal adaptation extended outside the park. In 1938, to protect dwindling marshland bird habitat in nearby St. Lawrence County, the US Fish and Wildlife Service established the 9,000-acre Montezuma National Wildlife Refuge. Fifty years later, it was clear that the refuge area was too small. Moreover, development pressure was threatening the surrounding wetland habitat, so the government and most environmental groups decided to enlarge the protected wetlands across an area where glaciers had created ponds and marshes and form a vast, ideal wildlife habitat, especially for migrating birds. This conservation agenda threatened the region's multigenerational farms and their associated lifestyles. Local residents rose up, and their protests rendered expansion out of the question. Furthermore, the government and conservation groups did not have enough money to fund the project. Conservationists began to explore alternative options. Nearby Adirondack Park, in this case functioning as a SCALE Squared center, had shown that public land could be integrated with private holdings to create a larger protected area. The government, conservation organizations, and local residents saw this as an approach through which they could all achieve their objectives.

Certain government lands, like the Montezuma National Wildlife Refuge, plus newly acquired lands by groups such as Ducks Unlimited, the Nature Conservancy, and the National Audubon Society, were designated as core areas. Other landowners gave conservation easements on their lands, but still kept them privately owned. These zones were supported by a buffer zone of private land where the owners retained all usage options but adjusted their behavior. Special funding then started to build wildlife ponds on these farms to make them friendlier to wildfowl, and helped rechannel drainage ditches to expand wetland areas. Farmers learned how to adjust their dairy operations to be compatible with avian habitat. Local entrepreneurs discovered business opportunities from tourism. A success in one place prompted neighbors to copy it.

Birds happen to be specially effective as simple indicators of ecosystem quality—they fly over all of it, sampling what exists in different places. Thus a few bird facts demonstrate the success of what has resulted in this extension of the Adirondack Park concept of public/private partnerships. The newly enlarged, multiple-stakeholder Montezuma refuge was the first site in the eastern United States to reintroduce bald eagles into a breeding habitat; by 2012, ten nesting sites were established. In the late 1980s, ospreys had only one nesting site in the biome; today there are fifteen. Sightings have increased for other nesting birds, and the numbers of many migratory species are also increasing. "The Adirondacks" can refer to the park itself, but an extension of its basic concepts is also being used in adjoining areas of national land, private land, and communities that have begun acting differently.

Five Criteria for Assessing Effectiveness

During Adirondack Park's first half century, its people were ignored. They had no statutory role in park administration, and no compensation for resources to which they had lost access.[9] But 105 towns and 100,000 people cannot be ignored when they organize, and serious organization began to happen in the 1960s, when the opportunity to engage with Governor Nelson Rockefeller's Temporary Study Commission arose. Town councils made their voices heard at the state level. Special interests organized through nongovernmental organizations; they learned how to help draft and change policy, lobby their state representatives, and use economic leverage to influence decisions. Peoples' involvement from the bottom-up and outside-in changed the two land-use systems—which had been essentially top-down, working in parallel with each other—to today's more integrated approach.[10] After the temporary commission's mandate ended, the local organization remained. The balanced result shows how the current system uses the five criteria of SEED-SCALE.

1. *Inclusiveness*. The Adirondack community was once divided: the visiting rich, who came in from New York City for health retreats and hunting and fishing vacations, and those who worked for them. A line existed between those with money and those who needed it. Today, with a growing middle class, that line is not so sharp. The Park Agency's regulatory commissioners come from a diversity of backgrounds and

represent a range of perspectives. Park residents now talk more about the opportunities the system offers, not about the restrictions it imposes.

2. *Sustainability*. Adirondack Park is America's largest, longest-running, formally constituted demonstration of people living sustainably inside a preservation area (outside the Native American communities, whose examples in conservation are often lauded but seldom studied). The Adirondacks' environment grows biologically healthier each year; natural resources are better protected than at any time since the mid-1800s. Boundaries have expanded and new agencies created as understanding has grown about the biome and about what environmentally responsible living involves.

Although the Adirondack biome is large, environmental awareness among those who love the park is even larger; passion for the Adirondacks extends up and down the eastern half of America. The partners in this loyal group recognize that there is a connection between industrial pollution in America's Midwest and acid rains that threaten the survival of their forests. They realize that setting land apart as forever wild is no longer enough. To achieve sustainability, many people must change the ways in which they behave. The Adirondacks are becoming a center for regional action on environmental concerns.

3. *Interdependence*. The Adirondacks are clearly dependent on the larger region, and even on European sources, for revenue, whether that revenue comes from selling sustainably produced timber (as is now being done by innovative Paul Smith's College) or from marketing the park to tourists and sports enthusiasts. But interdependency works the other way, too. In establishing the park, the larger region acknowledged its dependency on protected natural resources. In a similar sense, within the park, interdependence between private landowners and governmental protection also fosters better conservation.

4. *Holism*. The Adirondack Park experience shows that nature conservation can be an encompassing frame for diversifying economic activity. Almost everyone living in the park is aware that their livelihood is in some way derived from the park; the proof is in all the activities that have expanded there. This was not produced by locking off the flora and fauna, where human activity is restricted to tourists driving through and looking at the plants and animals, as it is in most national parks. Instead,

nature is being used for a holistic advancement of peoples' lives: bringing in a diversity of jobs, including those that cut down trees and kill a certain number of animals. Yet over time, because of management, the wild character remains, as the wilderness values of the "forever wild" state lands are enhanced, and the range of employment on private land expands: tourism, sports, education, retirement communities, small businesses, and even prisons.

5. *Iteration*. The Adirondack Park example evolved incremental changes over more than a century. Economic diversity, the interdependence of interests inside and outside the park, collaboration among community factions, the three-way partnership of community, officials, and experts, and the accumulation of data all took time. The iterative process inevitably causes frustration: each side has clear ideas about what it wants for itself. But through iterative change, the larger result has pretty well satisfied everyone. Solutions evolved, rather than having been prescribed; options that would otherwise have been unlikely came forward, and peoples' consciousness of what they were creating increased. Because of iteration, diversity, as it does in a healthy ecosystem, kept any single "species" (i.e., group) from dominating. In this manner, the iterative process feels its way forward, correcting itself when it overextends. Solutions that seemed right a century ago have gone through changes in a continuing quest for greater success.

Lessons from the Adirondacks

The forces that created Adirondack Park were unique to their time and political circumstances. By the mid-1880s, the eastern United States was nearing deforestation. Two and a half centuries of colonial settlement had taken a drastic toll. Although the human population was much smaller then, the consequences of peoples' actions on the land had been significant. There were fewer forest lands across New York State and the New England region than there are today.

But as adventurers discovered the Adirondacks from the 1830s on, as timber companies also moved in—cutting first the tall white pines, then the spruces, and then the hardwoods for furniture, charcoal, and pulpwood—concerned people, although lacking precedents for parks and models for conservation, established the park. A variety of constituents came together. People began what was then known as Adirondack State Park out of a

concern for protecting nature and then figured out, through experimentation, how to protect it. For complex situations, growth by process is effective. What is needed is to agree on the objective. A way toward that vision and the resources to get there do not need to be settled upon at the beginning.

As the world's need for conservation efforts now dramatically intensifies—with increasing numbers of people and their livelihoods of consumption—the Adirondack Park experience provides a useful model. It is applicable to initiatives in the American landscape, and perhaps even more so globally. This is a helpful concept to consider. While the Adirondacks themselves cannot be replicated, the process can: perhaps in old coal-producing areas 200 miles (320 kilometers) west of Washington, DC; perhaps with a restructuring of American national parks to create buffer zones around their strictly managed cores; perhaps in a transnational effort to protect habitat in an entire ecosystem, as is now being attempted in the Rocky Mountain landscape from Wyoming to the Yukon.

When the New York legislature mandated Adirondack Park in 1885, it aimed to protect land by setting aside a major tract to be forever wild, reclaiming land that had been cut over, and identifying key watersheds for preservation. As the focus of the park changed from preservation to recreation, the state bought more land, and so did people. Spontaneously, a partnership began forming and priorities evolved. From the beginning, most conservationists have lamented that the legislature did not acquire all the land, or at least impose control over the land in private hands. But, by giving private landowners remarkable latitude, the legislature inadvertently fostered an extraordinary model whose relevance (as well as its geographical size) has grown over time and for which the financial cost has been much less. By allowing—and later actively encouraging—people to work within a mandate for protection, the New York legislature created one of the world's most relevant models, where people have learned to integrate environmental protection with the way they live.

10

Development without Wealth

Kerala, India

For several decades, development scholars have been puzzled why some places, such as the Indian state of Kerala, achieved the mortality, fertility, and educational levels of wealthy societies without a parallel economic development. They are mystified because they never questioned the link between economic development and social development; SEED-SCALE recognizes that link. SEED-SCALE asserts that what should be unquestioned is that *people act to improve their well-being*, and in acting they access a second currency of development: their many energies. People can use their energies to drive economic production or a variety of social elements; eventually they choose both, but economic production need not come first. Improving their economic condition may not be where they want (or are able) to initially apply their energies. Perhaps they desire better health, or perhaps they prefer to put spiritual life ahead of money. Perhaps people cannot afford to start economic developments because a lack of natural resources, not enough start-up money, or debts. Or, as was shown in Ding Xian in politically unstable China (chapter 7), social action had to bring the country together before economic development could occur.

More than from money, social action comes from using the resource everyone has: their human energies. Collective change grows through cooperation. Economic growth comes from developing a scarce resource, which leads to competition, and competition often fractures social cohesion. Thus one method promotes cooperation, and the other, competition. And for some changes—in health, education, and religious values—action through cooperation is not only less expensive, but also more effective. Whole communities can advance, as shown by this example in Kerala.

When its success was first widely noticed in the 1960s, Kerala had the best health and education indicators and the highest amount of political participation in India, but it was also the poorest state in the country. Today, this state advances both economically and socially. Economic prosperity comes because Kerala exports its skilled labor around the world; these individuals then send remittances back, and that fuels economic growth, which leads to a diversified way of life. The experience demonstrates that when development is just, it can also be sustainable.

Most recent analyses of Kerala's success have focused on events since India's independence, when increasing amounts of data showed statistical associations among variables such as infant mortality and health facilities, or literacy and schools.[1] Our review starts earlier, identifying what began the transition: the dynamics that started this bottom-up growth. A three-way partnership turns out (again) to have been pivotal. Ideas came from the outside-in, in this case because of Kerala's location on the seacoast. From the top-down came enlightened, insightful royal leadership.

Origins of Social Development in Kerala

The state of Kerala was created in 1956, following the independence of India, out of three much older political units, each with a distinct character: the two independent princely states of Travancore and Cochin, and the Malabar Coast, which had been under British administration for a century. This southwestern tip of India was known as the Spice Coast. Here, traders had maintained contact with both the West and the East, traveling as far as the Roman and Chinese empires for over 1,000 years.

Travancore appears to have led the trend toward innovation. In the early nineteenth century, this independent princely state was an orthodox and rigid center of Hindu culture: when a high-caste person walked on a path, people of lower castes had to step aside to let the twice-born pass. But at least four factors that catalyzed change were also present in this conservative place. One was farsighted leadership by the rulers of Travancore. A second was the very strong and unusual matrilineal tradition of the Nairs, a Hindu high caste. A third was the Church of St. Thomas, founded in the first century by the Apostle Thomas, whose teachings eventually converted one-fifth of the people of Kerala to Christianity; conversions of many in the high castes reinforced progressive thinking among the elite. The final, and recently most important, factor was a progressive people's

movement that pushed for social reforms, cash crop–based agriculture, active links to outside forces of change, and enlightened leadership.

In 1817, Rani Laxmi Bayi, a member of the royal family of Travancore, issued a proclamation supporting general education for women, and she also presided over the opening of the first Christian mission school for girls. When her son opened the Trivandrum General Hospital in 1865, he announced that one of his ambitions was to make good medical care available to all his subjects.[2] Until Indian independence in 1947, this royal family continued to support education for girls and the construction of schools and hospitals. Although the family remained orthodox Hindus, cooperation evolved between arriving Christian missions and the government. Perhaps concern over the increasing number of Christian converts helped the royal family incorporate mission schools and hospitals into its already progressive programs. Adding to the expansion of religious tolerance was the respect enjoyed by the large, low-caste Esheva community, where the religious reformer Narayana Guru had influenced the opening of Hindu temples to all castes.

This forward-looking social base made possible the emergence of a progressive people's movement in the late nineteenth century, initially launched to fight caste-based oppression within Hinduism. Over time it expanded to broader social-justice issues, with peasants and city workers joining in its campaigns. In 1957, the 65,000-member organization formally constituted itself as the Kerala People's Science Movement. Since then, its members have been popularizing the use of science and making people aware of environmental issues. Beginning with successes in land reform, the Kerala People's Science Movement helped reduce the size and scope of some of the larger spice, coffee, tea, and rubber plantations. It also became the backbone of the state's highly successful total-literacy campaign.

The impact of this progressive nongovernmental organization, beyond the fact that it is a local group, is noteworthy in two respects: it went outside its initial mission of land reform into social issues, and it built from local evidence. These are two features that SEED-SCALE highlights: holistic action and evidence-based decisions. Since 1947, the people of Kerala have increasingly been involved in politics, occasionally electing communist governments with a distinctively independent local stamp. Communist Party leaders in Kerala enjoy a reputation for relative honesty and for commitment to a more just society.[3]

Civic commitment and political engagement are high. In part because Kerala has by far the highest per-capita readership of daily newspapers in any of the country's states, people monitor the performance of public servants closely and report laxness to higher officials. Continuing from its early efforts at girls' education, Kerala offers the most advanced opportunities in India for women to enter educational and professional roles. Its population growth is one of the lowest in the country, most likely a result of educated women. The people have come to expect a better way of life, and they express those expectations.

Parallel Promotions of Social Development in India

Events elsewhere in India also affected Kerala. Early in the twentieth century, leaders in many parts of the country were creating visions of community-based, comprehensive social development. Perhaps the most influential one came from the poet, novelist, painter, philosopher, and social reformer Rabindranath Tagore, who received the Nobel Prize in literature in 1913. Tagore grew up as the son of a landowner in Bengal, and his development philosophy grew out of practical programs he devised for villagers on his family's land. In 1901, he started a rural university at Shantiniketan, in West Bengal, which became a magnet for Indian nationalists. He also started a major training center for development at Sriniketan, an institution that grew in parallel with his rural university. His ideas directly influenced Mahatma Gandhi's "experiments with truth," which were taught in many ashrams (spiritual and community study centers).

Missionaries across India, as in China, also provided community-development leadership. For example, in the 1920s, Charlotte and Bill Wiser found themselves sitting on the running board of their Model T Ford outside the village of Karimpur, in the United Provinces, wondering how they would get to the people "behind the mud walls." They put up their tents and started developing friendship with neighbors. Doors in the village opened first when Charlotte, who had taken a three-month course in simple medical care, was asked to see if she could help the sick child of a village headman; that act led to the formation of a simple clinic. Bill, who had been a concert violinist before becoming a missionary, took out his violin to join village wedding processions. Their India Village Service in the Etah district led directly to the nearby Etawah project, which became (for a time) a SCALE

Squared center of action learning and experimentation and served as the model for Jawaharlal Nehru's Community Development Movement in the 1950s, with its national system of community-development blocks.[4]

In parallel, a third stream of influential programs were led by some British civil servants, who added village development to their administrative duties. One of these was F. L. Brayne, district commissioner of Gurgaon, in the Punjab, whose incentives for improved practices among farmers seemed, at first, to revolutionize village welfare. His success led to a statewide promotion of the program, but when Brayne left Gurgaon, the incentives ceased and the program fell apart, illustrating how easy it is to confuse real social changes driven by growing energies from inside the communities with only apparent ones, driven by incentives. Another member of the Indian Civil Service, Malcolm Darling, initiated a program of village banks and cooperatives to combat ancient systems of village usury. In northeast India, the participatory, site-sensitive approach implemented by Verrier Elwin, an Oxford anthropologist and civil administrator, helped protect minority tribes. His approach of first discovering and then building from local realities greatly informed SEED-SCALE methodology.[5]

Dynamics of Social Development in Kerala

Definitive analyses of the Kerala experience by T. N. Krishnan, P. G. K. Panikar, and others at the Trivandrum Centre for Development Studies document the magnitude of the changes that were achieved and contrast these with social change in the rest of India. According to 1991 census data, rural infant mortality in Kerala was one-fifth that of the rest of India (17 deaths per 1,000 live births, compared with 61 per 1,000 in the Punjab, the state with the highest per-capita income, and 86 per 1,000 in the rest of India). The birth rate in Kerala was 18 newborns per 1,000 people, compared with the all-India rate of 31 per 1,000. In 2011, Kerala was the only state in India in which there was no preference for male babies; in 1991 its gender ratio was 1,036 females to 1,000 males, compared with 927 females to 1,000 males for India as a whole. Life expectancy for females was 74 years in Kerala, 65 years in the Punjab, and 59 years in all of India. Literacy among females was 87%, compared with 39% for India.[6]

In another study, Moni Nag compared Kerala with West Bengal, a state with a similar history of education, cultural leadership, and long periods of

communist control of the government. The contrast in health indicators is telling. Infant mortality was lower in West Bengal than in Kerala until the 1940s, but after independence, Kerala's infant mortality rate dropped to about half the West Bengal rate. Utilization of health services in Kerala is approximately twice that in West Bengal, as is the availability of education for women. Such differences seem surprising, given that West Bengal has always been both more industrialized and urbanized than Kerala, two factors that are usually associated with improved socioeconomic indicators. Nag concluded that after 1949, West Bengal focused on economic development, whereas Kerala focused on social development, and that the latter produced these long-term benefits.[7]

The analyses show clearly that mortality reduction, literacy promotion, and political activity are strongly associated with the presence of health facilities in Kerala, coupled with the early introduction of modern schools there, especially for girls. They also show, however, that other factors (such as reduced rigidity in caste distinctions and religious affiliations) helped create social expectations where people identified specific and attainable social priorities on which actions could focus.

Kerala's social indicators are remarkable in themselves, but they are even more striking when compared with its economic indicators, because social development in Kerala occurred before economic growth. Although Kerala's 1991 per-capita domestic product was 4,618 rupees, compared with 9,643 in the Punjab and 5,586 for all of India, the share of Keralans living below the poverty line had declined from 60% in 1973 to 32% in 1987.[8] The current increases in per-capita income primarily arise not from local economic development, but from infusions of revenue from large numbers of educated Keralans working in the Gulf countries, other parts of India, and North America. By 2015, this reinvestment in Kerala is synergistically fueling a boom in economic activity, as well as continued improvements in social indicators.

Three Aspects of Kerala's Going to Scale

The Kerala experience demonstrates the three dimensions of development described in this book. In fact, observations of what happened in Kerala across decades greatly clarified our thinking about the multiple aspects of development. In Kerala the evolution was serendipitous, but now it may be possible to implement the process intentionally.

Growing in Size: Successes Rise to Attention

The princely states of Travancore and Cochin were orthodox Hindu centers, and, as in most such communities, the rulers and elites resisted change. But in Travancore, a combination of external and internal influences created a base of improved education and health care. By the end of the nineteenth century, Travancore's progress inspired Cochin's leaders to follow suit. There, too, three-way partnerships evolved as outside experts introduced schools and hospitals, local rulers implemented supportive policies, and community-based groups encouraged progressive action. As education and health care expanded, and as communities came to realize that a better life was possible, their confidence in change increased. By the end of World War I, large reform movements had emerged in Travancore and Cochin that would not be seen in colonial India until a generation later.

This top-down, enabling environment was not found in the Malabar Coast, which was under British colonial administration during the century of this remarkable transformation in the two other Indian states. The British agenda was to serve economic interests back home, extracting natural resources (and any others) for the empire's benefit. Development concentrated on buildings, railways, roads, and communications in order to promote rubber, tea, coffee, and spice plantations. Indeed, the British pointedly did not want bottom-up mobilization, whether economic or social, and certainly not political mobilization. Their focus was on an increasingly separated elite society, in many ways, co-opting them into a new economic class of well-educated, privileged Indians.

Improving Quality: Adapting and Adopting, or Beginning Scaling Up

From World War I to 1956, Travancore and Cochin extended their earlier demonstration projects by promoting a more-extensive enabling. Education and health-care coverage grew in quality and quantity. During this period, missionaries played a continuing role. One was Spencer Hatch, who, during the 1920s and 1930s, expanded a program for village workers in Martandam into what we term a SCALE Squared training center. Another was Dr. Howard Somerville, who, in 1922 and 1924, achieved fame as one of the early highest climbers on Mount Everest. Through his climbing, he fell in love with the mountains of India and moved his medical practice from England to the hills of the Western Ghats, where he became internationally

known for doing more gastric resections than any other surgeon up to that time, and then went on to make major contributions in medical education.

Other help came. In 1928, the maharaja of Travancore requested the Rockefeller Foundation to improve health care in his state. The foundation sent W. P. Jacocks to work in Travancore, Cochin, and Sri Lanka. (During this period the foundation was also supporting John Grant in China and his work with Jimmy Yen.; chapter 7) In 1931, Jacocks started a system of health services based on primary health centers, centers that extended rapidly throughout Travancore and Cochin, as well as in Sri Lanka, providing care to villagers while collecting vital statistics, doing health surveys, organizing communicable-disease control, training public health nurses and maternal and child health workers, improving sanitation, and emphasizing community actions linked to the identification of specific behavior changes necessary for improved health. All this represents an extraordinary breadth of actions—one any well-financed nongovernmental organization would flaunt—but it was achieved primarily through health education and social mobilization extending from the cities and larger towns into the countryside, not service delivery. This network, and women's greater access to education, probably worked synergistically to produce a dramatic decline in infant mortality, from 220 deaths per 1,000 live births in 1921 to 120 per 1,000 in 1956.[9]

An Enabling Environment: For Larger Goings to Scale

The momentum of development in Travancore and Cochin was challenged in 1956, when the two states were amalgamated with the Malabar Coast to form the new state of Kerala. Two socially empowered blocks were joined with an entity that prioritized resource extraction to benefit a distant empire and had neglected social development. Instead of leaving the new state developmentally segmented, the new communist government immediately started scaling up education and health services to achieve total coverage within Kerala.

Using the experience of Spencer Hatch's Martandam, W. P. Jacocks's health centers, mission schools, and government health centers as SCALE Squared centers, Kerala's government created an enabling environment for extending community-based services into Malabar as well as to the remotest areas of the two former princely states. Although outsiders played

a role in starting all this, it is unlikely that penetration would have been so complete without the Kerala People's Science Movement, which allied itself with the robust political Left; they also provided an outside-in check and balance to the now-energized top-down. The well-educated and politically aware populace, by voting governments in and out, ensured that alternating Communist Party and Congress Party regimes kept delivering social services.

At first, Kerala's focus on social development contrasted with Nehru's priorities of industrial and agricultural development in the rest of the country. Nehru had adopted a communist approach: that of the Soviet Union, which focused on central planning to promote industrial expansion. But Kerala's achievements outpaced India's. From 1956 to 1966, infant mortality was cut from 120 deaths to 68 per 1,000 live births; over the next decade it fell further, to 55 per 1,000; and by 1992 it had declined to 17 per 1,000.[10] In the late 1980s, Ernakulam became the first district in India to achieve universal literacy. A process that took a century in Travancore and Cochin was accomplished in thirty-five years in Malabar. Economic growth for all three would come in the 1980s.

During the extension of these social developments from Travancore and Cochin to Malabar, Kerala's government consistently demonstrated flexible responsiveness to community concerns, pressing always for integrated services. The state's extension of family planning illustrates this. Through the 1960s and 1970s, while Indian national policy was separating basic health services from family planning, Kerala maintained linkages in both rural centers and hospitals, using trained midwives and community-based workers. One result was a widespread acceptance of family planning; the fertility rate became the lowest in India. Another result was an increase in the share of births delivered by midwives, from 26% in 1973 to 91% in 1991.[11] During this same period, in response to pressure from international population-control enthusiasts, India's government further separated family planning from health and instituted sterilization camps. That resulted not only in a setback in family planning, but also a temporary fall for Indira Gandhi's government.

Kerala is one of few places in India where a pristine environment can still be found. The verdant Western Ghats of Kerala form one of the country's two centers of biodiversity (the other state being Arunachal

Pradesh in India's northeast), offering an extensive stretch of montane forest. The rugged hills of the Western Ghats resisted early exploitation largely through historical accident: people were concentrated in the plains along the coast, and the maharaja of Travancore owned estates in these hills and thus protected the area generally. Moreover, some of the valleys there are sacred to orthodox Hindus. More recently, largely through efforts by the Kerala People's Science Movement, popular will has been mobilized not only to preserve this treasure, but also to heighten public awareness about sustainable development.

Lessons from Kerala

Kerala's path to progress, now extending over almost two centuries, brought about social development without requiring wealth—but now this Indian state is wealthy (as is China, which also followed a parallel progression of social development to achieve economic prosperity). Much of this advancement was serendipitous, especially at the beginning, but the experience need not be unique, for there are lessons that can be replicated. Four factors played early key roles: (1) an evolution of tolerance among religious groups; (2) the encouragement of female literacy, which directly affected family well-being (especially the health of children), and the acceptance of family planning; (3) the influence of ideas and help from outsiders; and (4) enlightened political control.

Progress in Kerala has been neither steady nor linear; community capacity built slowly through demonstration projects centered largely on schools and hospitals. It then consolidated and accelerated, gaining political influence, expanding new gender roles, and the like. Through learning centers, practical lessons from these demonstrations radiated to broader populations. Some groups took hold of the ideas and advanced rapidly, while others were scarcely beginning. Helping to keep the momentum of change in balance was an enlightened framework of leaders and political parties that required accountability, ensured that services were integrated, and—with remarkable prescience—filled in gaps in societal need.

All four principles of SEED-SCALE were present. Kerala consistently built from its successes, using them as examples to be adapted. The early formation of a three-way partnership was crucial: first with the Travancore royal family's willingness to take risks, and then with the government, espe-

cially the distinctively Kerala brand of communism. Top-down leadership joined with expert assistance from missionaries and academics to support community decision-making. The experts' role was later augmented by an unusually effective progressive people's movement, which mobilized communities to put pressure on the political system. Because W. P. Jacocks (in the early years) and the Kerala People's Science Movement (more recently) both based decision-making on real data, local health centers adapted their outreach programs to local circumstances, changing behaviors and creating healthier environments.

Thus Kerala's development spans the three dimensions of SCALE. First came numerical growth, as local models developed and expanded for almost a century, setting a standard and building community-based momentum. Action learning and experimentation followed next. In Travancore and Cochin, schools and health centers became hands-on demonstrations and steadily expanded their coverage. This human-centered change drew in communities and promoted increased political participation, which, in turn, pressured the administrative system to continue expanding services. That bottom-up force turned around actions by the top-down, and it created an enabling environment to foster statewide scaling up. Thus the social capacity developed in the two princely states became the platform for launching the new state of Kerala and overcoming Malabar's legacy of dependency and social disempowerment. Particularly impressive is how, throughout this expansion, first regal and then democratic Indian leadership focused on nurturing peoples' capabilities.

Kerala's experience also reveals its adherence to all five SCALE criteria. Early experiments (by Hatch, Jacocks, and many missionaries) promoted a holistic approach instead of a focus on economic prosperity. Year after year, ideas were adapted, growing iterative momentum over a surprisingly long time. The left-wing political bloc kept a premium on inclusiveness and the extension of services. Interdependence among people and communities grew ever stronger as factions and political parties learned to compromise. As Keralans working in the Gulf countries, North America, Britain, and other parts of India become more conscious of environmental issues, they awakened concern back home to protect Kerala's successes and preserve its remarkable natural systems. This environmental consciousness may be arriving just in time.

In the words of Bill McKibben, speaking of these achievements: "Kerala supplies no new technology. Its gift is more precious: a new fuel for our imaginations."[12] For millions of poor around the world who do not have the option of basing their development on wealth, Kerala offers a refreshingly different, as well as sustainable, alternative key to the future.

III EVIDENCE FROM THE COMMUNITY LEVEL

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11

A Better Pattern for Cities

Curitiba, Brazil

Evolving patterns of just and sustainable living in cities is a central challenge today. More than half the people in the world now live in urban settings. More than 500 cities have more than 1 million people, and 20 cities have 10 million or more inhabitants. As the world population doubles in the next four decades, a ratio will result where two people live in cities for every one who does not.[1] Cities grow because that is where people find jobs. Despite conditions in what we call urban slums, studies show that in cities around the world, even in the worst slums, the options in access to services and the possibilities for economic opportunity and higher education result in lower mortality rates and greater food security than in the poor rural areas from which the urban migrants come.[2] But it is hard to imagine how even make-do services can keep up with today's growing demand. Might there be some sort of limit, where squalor becomes ascendant? Alternatively, questions of civil strife grow, as it seems that the intense communications that cities offer allow dissatisfied segments to mobilize, pull down governments, and launch social instability. But the basic demographic remains: the draw of cities is twice as strong as rural areas.

A dynamic interface exists in cities. Constant in-migration requires both newcomers and established residents to adjust, forcing a realignment of their ideas. This circumstance creates a zone of opportunity, at least for some, and their successes gives hope to others. Cities that are effective expand development opportunities faster than their populations grow. With their higher levels of entrepreneurial spirit and greater access, cities provide multiple venues for experiments and varied ranges of contacts. Surprises are frequent where growth is happening—one example is urban agriculture

(chapter 18), which creates jobs for newly arrived citizens out of skills these people had in rural areas, as well as contributing to civic stability and healthier lives.

Curitiba, Brazil, is another demonstration of SEED-SCALE practices; it shows how innovative urban planning created a ripple effect of people-focused development. Curitiba, a state capital at the southern tip of Brazil, grew tenfold, from 180,000 to 1.8 million, in the years 1950–2000; then it maintained essentially the same population level, encouraging growth in areas beyond the city and providing services there. Disparities between rich and poor persist, as they do elsewhere in Brazil; people continue to rebuild shantytowns along the river after floods, even after fifty years of efforts to dissuade them. Infant mortality is 41 deaths per 1,000 live births, considerably higher than global averages suggest for a city with an average per-capita income of US$8,000.[3] Curitiba has not overcome the challenges of development, yet its unusual approach to urban planning has expanded opportunities for both the well-to-do and recent arrivals from rural areas. Today, Curitiba has 100 times more parkland than in 1950; significantly less pollution; reduced danger from flooding; and, most importantly, a feeling among its people that their quality of life continues to improve. The per-person ratio is fifty-one square meters (550 square feet) of parkland for every individual in the city—an extraordinary amount of land that all can share in a city with nearly 2 million people. Social indicators—such as health statistics, education rates, movement out of poverty, and a lower crime rate—are better than in other Brazilian cities.[4]

Most of this success derives from Curitiba's imaginative pattern of growth. In most rapidly developing cities, growth radiates outward in amoeba-like squatter settlements, with a large floating population seeking shelter by night and work by day, increasing traffic congestion, living with insufficient plumbing and electricity, clogging social services, and creating a constant risk of civic instability—growth driven by hope, but a situation where a city's infrastructure is unable to keep up. In contrast, Curitiba expanded in a planned manner, through a process we call self-assembly, one of the features of tensegrity. The city achieved this orderly expansion without exceptional sources of money or other special resources.

In any city, transportation is a determining feature. In most modern cities, automobiles, buses, taxis, and trucks displace carts, bicycles, and pedestrians, with the inevitable increases in congestion, as well as air and

noise pollution. The officials planning the growing city of Curitiba in the 1960s recognized the importance of transportation, and the mayor sponsored a contest for a new master plan. Ideas were presented for public debate, and a team of young architects incorporated the collective input into an integrated set of solutions. One of these architects was Jaime Lerner, who later became mayor and accelerated the use of thoughtful planning. The guiding principle of the city's master plan was that patterns of mobility should function synergistically with land-use planning.

The resulting transportation network in Curitiba differs from conventional patterns. Subways and buses keep space-consuming private cars out of cities. Most urban-transportation designs assume that a subway system is optimal, since it can carry greater numbers of people than buses and can move on underground networks. Subways, with dedicated rails and shorter stops to let people on and off, are faster than buses. But Curitiba could not afford a subway system—subways are cost intensive, since tunnels must be constructed under an already-built city. So the city took the subway ideas aboveground, with the same benefits, but at 5% of a subway's cost.

Five arteries radiate outward from the center, a common-enough design in cities. But in Curitiba, each artery has three lanes going each way, with each lane dedicated to a specific form of transportation. Three-unit articulated express buses, with a capacity of 270 people, speed along the innermost lane in each direction—these are similar to below-ground subways. Flanking them is a high-capacity lane for cars and, on the outside, a lane for local access. From each of the five spoke-like arteries, a network of secondary bus routes links commercial and residential areas, rich and poor, throughout the city. More than 12,500 bus trips are made each day.[5] Traffic patterns are prioritized to maximize ecological and public efficiency.

Efficiency also came from reducing the amount of time express buses were stopped. Buses end up being slower than subways, the planning team realized, chiefly because they stop more often; because their doors remain open longer, to allow people to climb and descend the entry steps; and because paying fares to drivers creates a bottleneck. So in Curitiba, people board buses on the entry level, from elevated, easy-access loading platforms, where they prepay their fares before the bus comes.

The system's efficiency is proven by the fact that 80% of Curitiba's population, from every socioeconomic group, uses public transportation. Although the city has the second-highest per-capita share of private transportation in

Brazil (600,000 private cars), per-capita fuel consumption is 30% lower than in comparable Brazilian cities, because of the popularity of the buses: 1,100 buses make 12,000 trips per day, carrying 1.3 million passengers.[6] In achieving this high rate of use, Curitibans spend just 10% of their income on transportation. With people using their cars less, taking them chiefly when buses will not get them where they want to go, Curitiba's traffic congestion and urban air pollution are the lowest in Brazil. Public transportation has become the city's primary mode of travel, and such universal use brings with it the essential feature of fostering a greater sense of community.[7]

Transportation systems also stimulate economic activity. Since buses are not city owned, but leased to private enterprises, a number of private transportation companies compete to improve efficiencies. The city pays companies according to the distances they drive, rather than the number of passengers they carry. This arrangement removes the incentive that favors high-traffic routes and supports the extension of geographic coverage. Consequently, thorough coverage and brief travel times reinforce high ridership, which makes the transportation system self-financing. Curitiba therefore avoids the heavy public-transportation subsidies that burden most cities, investing funds instead in socioeconomic development.

Thus Curitiba's experience provides another lesson in the value of an enabling framework of genuine partnerships, specifically, in putting people to work in the roles they are best equipped to perform. In the 1960s, when the mayor saw the problems arising from rapid urban growth, he created a three-way partnership among city officials, experts, and the community: experts (in this case, architects) brought in new ideas, citizens critiqued them, and officials pushed toward total city coverage. In this process, roles remained clear: officials did not also try to be experts, and they sincerely sought participation from citizens.

When one of the experts later became mayor, and other experts also assumed positions in the city's government, it would have been easy for them to become insular and exclude experts from the outside, but instead the partnership continued. In keeping roles separated, officials also shunned the actual running of services and telling people what to do. This avoidance of inappropriate roles is a vitally important feature of Curitiba's successful partnership. Recognizing that some functions were more effectively implemented by nongovernmental entities, the government contracted

with the private sector, where competition has produced efficiency and promoted job growth. The operation of buses by private companies is only one such example, and in all cases, service contracts are self-supporting rather than publicly funded, resulting in an uncommonly light administrative and services superstructure, which makes the government more efficient and responsive to its citizens, and counters what seems to be an almost universal temptation by governments to "grow big," adding to their power and size.

Curitiba's transportation system is the visible sign of its alternative, community-centric approach to development, but the shift in planning that started the change seems to have begun with concern about urban flooding. In the 1950s, when Curitiba started to grow, urban migrants crowded into marginal floodplains, building shacks along streams (and even on top of streams), filling in low depressions, and digging trenches to drain wet banks. Periodic floods regularly swept away these toeholds of the poor on the marginal lands. The government held to its policy, regulations made the streamside land free of houses, and a network of parks started to grow there. Pressure to build houses along the streams continues today, but the government, understanding the larger issues, works to keep this land open.

The usual solution to urban flooding is to build concrete raceways to carry water out of the city as fast as possible. To address this problem from a different perspective, in the 1950s and 1960s, the mayor adopted a "design with nature" approach. What was done was to protect land along each side of the waterways, so, stream by stream, the city's parkland grew incrementally.[8] With new construction along the waterways prohibited, older construction in that area was incrementally replaced with trees and parklands. Artificial lakes were created to absorb the sudden surges of floodwater in the streams. Low areas in possible floodplains were set aside as citywide sports and leisure facilities, rather than for residential use, again creating natural sponges to absorb the water. Land-use planning that started as flood-control prevention increased per-capita public green space from half a square meter (five square feet) in 1970 to fifty square meters twenty years later—a hundredfold increase, while the population grew fivefold. Curitiba had just one park in the 1950s; today the whole city feels park-like.[9]

The green spaces do not look like customary parks. Curitiba's parks are green strips that run aesthetically through the urban landscape. Open,

communal lawns are dotted here and there in these green threads, forming a scattering of square blocks, or oases, that buffer communities. The creation of these green corridors and gathering places has reoriented the ways people live. They serve as places where people walk and meet each other—like the buses, the green spaces encourage people-to-people contact, tying neighborhoods together instead of isolating them. What began as a concern about an outside danger, in this case flooding, strengthened community. People responded to a danger not by opposing the threat, but by removing it.

An architectural view can do more than devise spatially creative solutions for modes of transportation and flood control; it promotes function-fitting design, as does SEED-SCALE. This view is not budget-driven, and it serves more than one sector. In Curitiba, this architectural approach to space also addressed the problem of poverty. Poverty is a phenomenon that communities usually try to hide. Instead, Curitiba brought poverty into the open. As the city planned its growth and new neighborhoods were laid out, low-income housing was designed in each area, meaning that poor people were given easier access to transportation and industrial nodes. Not isolating the poor encouraged job growth and strengthened the community by moving people out of dependency.

Garbage collection was another area of innovation. City officials looked at garbage not as a nuisance, but as a resource to create opportunities for the poor. A waste-recycling program started that employed recent immigrants to the city and the homeless to be crews on privately contracted garbage trucks. In 1989, an outbreak of rat-borne bacterial disease (leptospirosis) created a crisis: the city's garbage trucks were not allowed to navigate out to the slums, where the disease was harbored. City officials calculated what it would cost to create a subsystem to haul the waste out, and they added that amount to Curitiba's budget for garbage removal. But instead of paying the money to subcontractors, they arranged for people in the slums to bring their trash out to the trucks and receive food in exchange. The poorest families benefited most: garbage went out, food came in, and farmers, who had been moving into the city and exacerbating the problem with in-migration, now had a larger and more regular market.[10]

Another innovation in Curitiba, prompted largely by city leaders' wives, is a cluster of programs addressing the needs of children. In the mid-1980s, before the new programs began, more than 500 children were adrift on the

streets, without parents or parental support. Today Curitiba spends 40% of its budget on child services, recognizing them as a cost-effective way to break the cycle of poverty. The city provides daycare centers for preschoolers (for up to eleven hours a day) and adds to funds that come from national sources to improve the schools. Although Curitiba lacks the resources to operate its schools for more than half a day, for children lacking at-home support, the city sponsors music, sports, and other activities during the rest of the day. Children who turn in non-biodegradable trash, such as batteries and toothpaste tubes, are given pictures of their heroes. Children and adolescents may create personal gardens on open land, under adult instruction and supervision, and from these they may eat or sell what they grow, teaching them skills and giving rise to organized support networks. Thirteen support houses were established, offering practical job training. Over the years, the number of children adrift on the streets has declined by 60%.[11]

Almost every city has its lighthouse programs, services that stand out. But Curitiba's lighthouse programs are remarkable in several ways. First, there are more of them than in most cities, and their sheer number creates a critical mass of hope that strengthens the momentum of development and creates a self-regulatory feedback loop. Second, the programs have improved and expanded steadily across four decades, despite changes in political leadership. Third, one idea has frequently either generated or linked up with other new ideas, and this self-assembly of new initiatives prompts critiques of older ones. Fourth, awareness that the city is part of a larger natural environment is reflected in Curitiba's parklands, millions of trees, and urban gardening, all of which make the city healthier. By effectively supporting genuine development, officials have gained wider influence, trust, and credibility.

Many cities became centers of progress through resources taken from colonies elsewhere, the profits of trade, and/or natural resource extraction in rural or wilderness areas. Curitiba is developing by drawing on the resources within it; its people are rethinking and reorganizing city life to meet their own priorities.

Curitiba works as a SCALE Squared center, fulfilling the functions of action learning and experimentation, and is a model for other cities around the world. Cape Town is patterning its growth directly on Curitiba's. Prague, New York City, Montreal, Paris, and Moscow are adapting aspects

of the Curitiba approach to their own needs and goals.[12] This city has not solved all of its problems, but it is demonstrating a different path to urban development, one of synthetic planning, one where functional analysis occurs first, and form follows. In the process, it is shaping its own future.

Bill McKibben, whose writings have done much to bring Curitiba to the world's attention, puts it this way: "Curitiba is among the world's great cities. Not for its physical location: there are no beaches, no broad, bridge-spanned rivers. Not in terms of culture or glamour: it's a fairly provincial place. But measured for 'livability'—a weak coinage expressing some optimum mix of pleasures provided and drawbacks avoided—I have never been any place like it. In a recent survey, 60% of New Yorkers wanted to leave their rich cosmopolitan city; 99% of Curitibans told pollsters they were happy with their town; and 70% of [São] Paulistas, residents of the mobbed megalopolis to the north, said they thought life would be better in Curitiba."[13]

12

The Role of Conceptual and Cultural Breakthroughs

Narangwal, India

In 1969, we were two years into a field experiment to improve the survival and nutrition of children in a cluster of villages in the Ludhiana district, located in the Punjab in northern India. Several family-health workers (FHWs) from our project were being trained in how to diagnose childhood pneumonia in the pediatric wards of Ludhiana's Christian Medical College's teaching hospital.[1] In this region of India, pneumonia was the second-greatest cause of death among children under three years old. Pneumonia has held this number-two child-killer position through the centuries around the globe. At the time we were working, this disease was killing more than 4 million children worldwide each year. To prevent child deaths from pneumonia, both the diagnosis and the treatment need to be quick; infants with pneumonia can die within two or three days. The only effective cure at the time was penicillin, but its use required early diagnosis. In village homes, diagnosis was difficult, because most village children had chronic coughs and runny noses. To know if penicillin was needed, health workers needed a way to distinguish between pneumonia and a common cold, with a diagnostic that could be done in the homes.

So we were training village workers in Narangwal, and we took them to a hospital pediatric ward where a professor was showing them lung x-rays and explaining the signs and symptoms that physicians looked for. The tool the FHWs were learning to use was the stethoscope, and they were having trouble; this is not surprising, since even experienced clinicians have difficulty hearing faint changes in breath sounds in babies. In frustration, an FHW said: "Why do you want us to learn to use these instruments? We

have talked this over among ourselves and we have found a better way: *just watch the babies breathe*!"

The doctors put aside their instruments and observed. It was true. Babies with pneumonia were breathing differently from normal babies. Respirations were rapid, labored, and frequently accompanied by grunting. Those with the most consolidation in their lungs had visible retraction under and between the ribs. Systematic trials followed, checked by x-rays, and they showed that persons trained in direct observation could make diagnoses as accurately as pediatricians with stethoscopes.

Once it was shown that family-health workers could accurately diagnose pneumonia, the question was whether they could safely use penicillin injections for treatment. The government reluctantly gave permission for well-supervised FHWs to administer these injections if they then referred babies to health centers when there was no improvement. One year later, pneumonia mortality in the study's villages had dropped by 45%, compared with control villages.[2] This was the first published demonstration of what became the World Health Organization's case-management method for childhood pneumonia.

A few years later, workers in New Guinea standardized the observational methods by counting respirations.[3] This effort led to the current guidelines: if a baby less than two months old is breathing more than sixty times a minute, it should promptly be treated for pneumonia; between two and twelve months old, the threshold is fifty times a minute; and at more than one year old, forty times a minute. To help in counting respirations accurately, UNICEF produced rugged, battery-operated timers that beep after thirty seconds. Procedures in subsequent years were simplified even more with the safe, broad-spectrum oral antibiotic cotrimoxazole, costing only US$0.25 for a full treatment.[4] As a result, pneumonia death rates in children started to drop and are continuing to drop significantly worldwide.

Mothers around the world and throughout history endured the situation of pneumonia as the number-two cause of their babies dying. Now they have a way to differentiate this dangerous illness from a runny nose and a common cold. Because diagnosis and treatment can be done at home, doctors and hospitals will make less from high-profit, routine treatments, but communities will become healthier when health care is put into peoples' hands.

The Importance of Conceptual Breakthroughs

Creating a more just and lasting future happens with periodic conceptual breakthroughs, such as the one described above. Each sector of development (agriculture, health, schooling, transportation, and the like) will have its own breakthroughs, with these usually occurring unpredictably. A system is needed that encourages breakthroughs, and that validates the capacities of communities to help evolve them (rather than suggesting that these innovations must be done by professionals). In conceptual breakthroughs, a variety of factors customarily have spontaneously come together. But in recent years, they have been increasingly stimulated by deliberate experimentation at field-research centers, usually focusing on a particular set of priority problems. Conceptual breakthroughs arising intentionally, and being verified through science, is what SCALE Squared centers do; these places are the laboratories of social change. The role of the Narangwal research center in the conceptual breakthrough on childhood pneumonia is one example.

Field-based research centers have fueled intentional breakthroughs in health, as they did for agriculture in the Green Revolution (chapter 2 and the conclusion). In public health, as in agriculture, progress in one place stimulated trials at other sites. During the 1960s and 1970s, a network of field-based health laboratories around the world experimented with alternative public health interventions, building on one another's discoveries and systematically developing new approaches. Communication between them was important.

The International Center for Diarrheal Disease Research, in Dhaka, Bangladesh, is one of the oldest and best-known of this worldwide web of centers. Its field center in the Matlab district was established by Henry Mosley (chapter 6) to test a cholera vaccine. Its most important innovation was a simple system of data collection to get total monthly counts of births, deaths, migrations, and other population figures. With this continually updated database, field trials took the rigorous testing of new vaccines beyond the laboratory and into large populations for clinical trials, and promoted integrated health-care interventions that led to more breakthroughs. Matlab confirmed the findings from Narangwal: women more readily adopted modern family planning when it was integrated with basic maternal and child care. Its database was also used for definitive field experiments showing that oral rehydration therapy could control deaths from diarrhea, then the number-one killer of children worldwide.

Another important center in this informal global network was the Johns Hopkins Center for Tropical Medicine Research and Training, located in Calcutta, which worked with the Bangladesh and Narangwal centers to develop mass methods of applying this simple, low-cost cure for diarrhea. In 1976, an editorial in the eminent medical journal *Lancet* declared using oral rehydration therapy as a cure for diarrhea to be "the most important medical discovery of the twentieth century."[5]

One other center making key discoveries was the Institute for Nutrition in Central America and Panama, located in Guatemala, where Nevin Scrimshaw and his colleagues provided clear evidence of a synergism between malnutrition and infections. They followed up this conceptual breakthrough by showing how low-cost, adequately balanced nutrition could be achieved in large populations.[6]

These are only four of the better-known centers worldwide. Other pioneering activities had been under way for at least a century, most significantly among medical missionaries who, despite tight financial constraints, had experimented constantly to evolve effective yet low-cost innovations in their isolated settings. Other initiatives that pointed to community-based solutions had been supported by the Rockefeller Foundation from the 1920s through the 1950s, such as the Ding Xian Experiment (chapter 7). Some of these innovations were picked up, refined with rigorous science by the research centers, and have now become accepted practice.

Many of these threads were drawn together by Halfdan Mahler, director-general of the World Health Organization in the 1970s. With a worldwide mandate for improving health, Mahler recognized that most countries could never afford services that depended on the paradigm of specialty clinics and physician-based care. In 1974, he persuaded the World Health Assembly to make primary health care a priority by bringing services as close as possible to families and changing the health practices of people in their homes and communities. In the mid-1970s, UNICEF added to this momentum through its child health efforts. In 1978, the World Conference on Primary Health Care, held in Alma-Ata, endorsed this new approach, which was centered on practical, community-based strategies. One major reason for this widespread acceptance was the presentation of solid, quantitative evidence that conceptual breakthroughs had made.

Studies done during our health research project in Narangwal (from 1961 to 1974), where the health workers had developed the "watch the babies

breathe" technique, demonstrated not only its effectiveness in diagnosing childhood pneumonia, but also the feasibility of using simple interventions to quickly reduce three other main causes of child deaths: diarrhea, protein-energy malnutrition, and neonatal tetanus. This research showed that it is more practical and cost-effective to integrate services—such as immunizations, family planning, and maternal health—than to provide separate services.[7]

The Narangwal team of research workers and field staff lived and worked in multiple clusters of villages, according to a controlled experimental design, so it was possible to compare different packages of interventions. The project tested hypotheses under field conditions that partially replicated the controls used in laboratory experiments. The area covered three community-development blocks (the term officially used in India), with a total population of 260,000. The main village clusters consisted of a total of twenty-six villages, with a combined population of 35,000. The research was conducted jointly by the Indian Council of Medical Research and Johns Hopkins University's Department of International Health and was reported in six books and more than 100 journal articles.

These field studies helped provide the conceptual basis of the Child Survival Revolution in developing countries by focusing on the major causes of death. In the fall of 1973, six years before he became executive director of UNICEF, Jim Grant gave his annual lecture at Johns Hopkins University. After his presentation, we showed him data from the community-based research at Narangwal, where, in controlled village trials, child mortality had been cut in half by a package of interventions carried out by village women, who were guided by family-health workers, at a total cost of just over US$2 per person per year. As we walked down the hall afterward, he suddenly stopped and exclaimed, "Carl, we can start to talk about a Child Survival Revolution!" This was the first time I heard him use what became one of his favorite terms. By the 1990s, after coordinated work by UNICEF and WHO worldwide, he was able to claim that child survival had improved more in the previous four decades than in all prior human history.[8]

Diarrhea in Babies: Cutting Mortality by Half

Throughout human history, diarrhea has been humanity's number-one cause of death. In the mid-twentieth century there were more than

5 million diarrheal deaths each year. Diarrhea was so common in young children that in many villages it was considered normal, and not recognized as their communities' principal killer. In the heat of a Punjab summer, babies died in two or three days when diarrhea drained away their bodily fluids. A baby would seem to be normal, a mother would be busy, and then the child was dead. Interventions were needed that mothers could immediately use. The presence of diarrhea is obvious, but mothers needed to recognize that a baby was about to die from it. Signs of this illness were sunken eyes; skin that stayed puckered when pinched; and, in infants, sunken soft spots in the skull (fontanels). Like watching babies breathe, these are also accurate, simple diagnostics. We first trained family-health workers to recognize the signs of acute dehydration, and then to refer the babies to a special ward at the health center, where they were lined up on cots to receive intravenous drips into their scalp veins. But while bringing babies to a hospital makes sense to doctors, it is an inconvenience for mothers, so it is an easy task to put off until it may be too late.

Colleagues at the Johns Hopkins Center for Tropical Medicine Research and Training had already shown that oral rehydration therapy would counter fluid loss from cholera and quickly save lives.[9] That proof was established in a refugee camp, where oversight after the service's delivery was possible. The question then followed, could oral rehydration therapy be an effective home treatment for common diarrhea? Our program in Narangwal, working in parallel with the Calcutta and Bangladesh centers, had FHWs use little plastic bags of a carefully measured mixture of salts and glucose, dissolved in a liter (a quart) of water, to make up a rehydration solution, which was fed to the dehydrated infant by spoon.

A year later, there was no improvement in the mortality rate. Investigation showed that the family-health workers still thought intravenous therapy at the health center was more scientific, so they were referring patients there instead of starting the oral therapy. The babies were dying before they arrived at the ward. We closed the special intravenous ward and issued new standing orders: whenever FHWs saw a case of diarrhea with dehydration, they must stop whatever else they had scheduled, prepare the solution, and give it to the baby themselves until the mother could continue the care. After a few dramatic demonstrations of child recovery, mothers began to use the technique spontaneously when diarrhea started, and the diarrheal death rate in the study's villages fell by almost half.[10]

Parallel data came from Bangladesh and elsewhere.[11] Since then, the procedure has been further simplified with the use of even safer, more-effective, cereal-based oral rehydration solutions: mothers or health workers simply add salt to whatever cereal flour is available in the home and mix it with water. A rehydration solution made from roasted barley flour has been especially effective in Tibet (chapter 20), requiring no outside resources.

Protein-Energy Malnutrition

Although pneumonia and diarrhea are often the direct causes of death in young children, a synergism between malnutrition and common infections is usually the underlying cause of death. In the 1950s, we had defined an association between diarrhea and malnutrition in a project in Khanna, just twenty-six miles (forty kilometers) from Narangwal.[12] The breakthrough in understanding this causation came when all the factors were put together: a child weakened by poverty, ignorance, lack of appropriate food, and/or natural catastrophe would develop a simple infection, such as diarrhea, and that would precipitate a downward spiral. Infection would make the malnutrition worse, which, in turn, would lower resistance to other infections.[13]

Marasmus is a particular type of malnutrition, resulting when both protein and calorie deficiencies are present. The condition can be easily corrected by nutritional supplements, but despite their potential as a simple remedy, in the Narangwal villages in the 1960s marasmus was the third leading cause of death, being much more common among girl than boy babies, because boys were given preferential care (a preferential difference was obvious from observations of children who should have been the same size). At three years of age, girls were, on average, three-quarters of an inch (two centimeters) shorter and one pound (one-half kilo) lighter than boys, and caste differences widened the gap: the average low-caste three-year-old girl from a control village that did not have our nutritional supplements was 2.5 inches (six centimeters) shorter and weighed 5.5 pounds (2.5 kilos) less than a high-caste boy from a nutrition-care village.[14] Simply put, girls were being starved, and people had become convinced that this was normal. Similarly, people thought it normal that high-caste children should be larger than lower-caste children—both preposterous notions.

Taking action on the problem, though, required sensitivity to traditional beliefs and feeding practices. The local name for the condition marasmus

was *sokha*, which means "drying or shriveling up," a term that described a baby half its normal size, with the face of an old man. Traditionally, when marasmus became severe, the village wise man or faith healer was called. If he diagnosed *sokha*, death was believed to be inevitable; the baby's body had been taken over by the shadow of a *parchawan*, or evil spirit. The baby was then kept in a dark room, so the shadow could not move to other children. Against this practice, our Narangwal work showed that marasmic babies who received supplemental feedings responded dramatically, with almost daily catch-ups in growth and vitality.

Not surprisingly, given the above caste–size correlations, most cases of marasmus were in the lower-caste sectors of villages. Using the evidence of numbers rather than accusations of prejudice, village elders agreed to locate feeding centers in areas where the highest prevalence of marasmus was concentrated. (In many instances such as this, presenting facts without added interpretations more effectively carries messages—the value of evidence-based decisions is one of the four principles of SEED-SCALE.) Focusing on at-risk babies, and making no comments about boy/girl or high caste/low caste, volunteers visited homes and gave out grain and milk. Families learned to use appropriate weaning foods, and malnutrition rapidly disappeared throughout the region. In a few years, a major cause of death was gone, and formal health services had essentially no role in its total reduction. These results led to a secondary consequence: open questioning of the power of faith healers, a factor that was also important in dealing with neonatal tetanus. (This approach of addressing macro-level health change using societal systems also appears in chapter 17.)

Neonatal Tetanus

The fourth major cause of childhood death in northern India (as in many traditional villages around the world) was neonatal tetanus. We had realized its importance ten years earlier in the Khanna project, where the first year's data showed that many babies were dying at the end of the first week of life. The symptoms suggested tetanus, although the local people called the condition *artwhan* (eighth), because babies became sick and died around the eighth day of life.[15] In the late 1950s, when we reported the frequency of neonatal tetanus to the governmental health department, officials challenged our findings, because the condition was never seen in the hospitals. After interviews with the mothers, we had the answer. The

people had told us, "There is no point in taking these babies to doctors, because they all die anyway"—which was true.

The Narangwal project showed that, as with marasmus, people believed a *parchawan* (also called a *bhoot*) was responsible: a shadow of an evil spirit had entered the baby, in this case at birth. To prevent shadows, traditional midwives usually delivered babies in darkened rooms with mud floors, so the placenta (considered a major source of spirit pollution) could be buried promptly. The umbilical cord was commonly cut with any sharp farm instrument, such as a sickle, and the stump was tied with an old piece of string. Floors where all this occurred were commonly plastered with cow dung, which was considered sacred, but it was also heavily infected with tetanus bacilli.

It would be an uphill argument to directly challenge beliefs in evil spirits. Instead, we told them that science had determined that the evil spirit was a life-force that grew in polluted soil, and especially in dung. We asked them to imagine the evil spirit as a tiny creature, impossible to see (unless by microscope), hiding in the floor. This tiny enemy had to be prevented from getting from the floor to enter the body, so we advised the use of two parallel actions: family-health workers gave midwives simple packets (consisting of a sterilized razor blade, an umbilical cord tie, and an antiseptic dressing), and they arranged for mothers to receive an injection of tetanus toxoid, a practice that accorded with local beliefs in the value of increasing positive forces that were then transmitted to the baby. This was one of the first population-based studies to show that tetanus toxoid immunization could eliminate neonatal tetanus. Tetanus deaths, the number-four cause of death in these communities, totally disappeared in two years.[16]

Here, a major reduction in what are the primary causes of childhood death worldwide (pneumonia, diarrhea, malnutrition, and tetanus) came through actions by mothers, but the results were not produced by mothers alone. Effective care was evolved through scientific research, which opened up policies enacted by the government. In other words, there was a three-way partnership. Better health did not result from expanding health services through doctors and hospitals. The resultant conceptual breakthroughs used anthropological data to combine scientific understanding with traditional beliefs. People changed their behaviors when they could reinterpret their values. The experience also shows that it is often better to use a demonstration to change behaviors, rather than directly attempting to alter peoples' beliefs.

Integration of Maternal and Child Health with Family Planning

The value of integrating health dynamics is demonstrated at the family level, specifically, in maternal and child health. When this health aspect is emphasized, the strong pressure to have more children decreases. In contrast to the policy of separating services, which was then being aggressively pursued by international agencies, the Narangwal field trial proved that family planning would be accepted more readily if it was integrated with a child-survival program. The thesis was that once children were seen to be surviving, then people would recognize there was now less need for additional children.[17]

To reach this understanding, an awareness shift was needed. Simply giving families modern contraception and telling them how to use it was not enough. Sexual desire is a basic and primary drive, and thus a difficult one to challenge. But the question had to be answered: why were parents having children? What is the balance between peoples' desires for having sex and their values and expectations for family? The project at Narangwal measured the specific components of health care that most directly increased family-planning use. Five clusters of villages received different combinations of family planning, maternal care, and child care services, and these were compared with a control group that had only the government's separate health and family-planning services.

Resulting evidence showed that combining family planning with children's preventive services almost tripled the contraceptive rates among couples who had not been using modern family planning. When curative services for women and children were added, the practice of family planning almost doubled. Integration also promoted a measurable movement from less-effective to more-effective family-planning methods. In sum, the evidence showed that combining health and family-planning services was two to three times more cost-effective overall than simply promoting family planning. The integrated package of all services cost about US$2.20 per individual per year (at 1970 exchange rates), with about 90% of these services provided by family-health workers. When the project started, 21% of high-caste couples practiced family planning, compared with 13% of low-caste couples. After three years of services, about 46% of both caste groups practiced family planning. Similar reductions of caste disparities occurred in the utilization of both preventive and curative health care.[18]

It took two decades for this breakthrough in understanding the importance of integrating family planning with maternal and child health to be accepted. Not until the Cairo World Population Conference in 1994 had sufficient evidence been accumulated in repeated studies around the globe for international leadership opinions to change about how family planning should be promoted: by integrating services under the term "reproductive health."

The twofold lesson here is not limited to family planning. First, throughout this book, we emphasize the necessity for integrated services, because people in the real world do not have just one category of need (such as health; or, more narrowly, family planning; or, even more broadly, health and economics). People are busy, with multiple priorities, and they do not like to make repeated visits for services that could be provided all at the same time. Moreover, promoting separate services is both ineffective and inefficient, as it requires a duplication of infrastructure and support. An oft-overlooked fact among donors who typically think they can buy their way to their objectives is that there are not enough skilled personnel at the local level to implement the proposed number of parallel activities—bringing in an outside priority (as the global polio-eradication program now does) disrupts peoples' motivations toward their own priorities, and disrupting peoples' priorities loses an essential resource, their participatory energies (they are working for you, not for what they believe in). Working for outside objectives almost always lowers local empowerment.

A second lesson in promoting family planning is the necessity for community participation (i.e., empowerment). Sexual behavior profoundly affects daily life. It is arrogant for professionals to think that sex is a technical act (and it is doubtful that they personally treat it that way). Family planning was separated from integrated health services not because this was what people wanted, but because donors were using their funding to reduce global population-growth rates. Their insistence on results led to a worldwide focus that overlooked *why* people were having children. Solutions were being orchestrated by administrators thousands of miles—and light-years of understanding—away from the lives being affected. Populations grow in a community context, and their reduction does not have a simple solution, even though contraception may seem like a simple remedy.

The Roles of Private Enterprise and Traditional Practitioners

An early question we asked ourselves at Narangwal was whether traditional village practitioners could be integrated into the community-based management of primary health care. In the mid-1960s, the project's anthropologists were doing comparative studies of Ayurvedic practices (traditional Hindu medicine) in seven parts of India.[19] One anthropologist, Jagdish Bhatia, was filling out checklists of care routines used by traditional practitioners in the Narangwal area. One evening, dismounting from his bicycle, he told us, laughing: "You'll never guess what I saw today. A *vaidya* (a fully trained Hindu medical practitioner) gave a patient some capsules, and when I asked what they were, he said he didn't know English, so would I read the label for him. Isn't that funny?"

It turned out that the capsules were an antibiotic called Chloromycetin, a powerful drug that was not even used in hospitals without carefully checking blood tests. Bhatia was asked to find out how this traditional practitioner who, until then, we had presumed based his practices in herbs, had gotten Chloromycetin and learned to use it. Bhatia returned and said that he had looked at the bottle, where the Punjabi words *bukhar da laye* (for fever) had been written across the bottle's label. Further research uncovered an underground system of drug distribution and medical education. Pharmacists in the nearby city of Ludhiana had an informal teaching arrangement in which they supported a network of traditional practitioners. The practitioners, both Ayurvedic followers and former hospital orderlies, came in periodically and asked questions, such as: "I'm seeing a lot of eye infections. What do you have?" The pharmacist would reply, "The detail man from [any of the big drug companies] was here last week, and he says these ointments are good for eyes." The most important criteria for these practitioners in their do-it-yourself trials were how quickly the drugs would take effect and which ones yielded the greatest profits.

To hold their network together, the pharmacists had organized a district association of traditional practitioners. The association paid for monthly meetings in which they provided good food and drink, along with sales pitches for drugs. Bhatia joined the association with no trouble and got the details of its operations. From this evidence, a national study was started, and this trend was confirmed by a national commission for health-care reform. Pharmaceutical corporations were profiting hugely from a relatively uncontrolled drug market they had created in the traditional health-

care sector. Traditional practitioners work not just in India, but all over the world, as they have done across the ages, and the opportunistic drug companies have spotted them as a ready market.

The magnitude of this problem has grown. Now, more than fifty years later, the commercial sale of medicines through unregulated channels of freewheeling privatization accounts for the dominant share of health-care delivery costs worldwide. The flood of drugs, promoted as part of a global privatization by the drug companies, as well as by the World Trade Organization, the World Bank, and other international groups, has now undermined five decades of intensive worldwide efforts to foster rational primary health care using safe, low-cost medicines. Rather than people being enabled to create healthier lives for themselves, which is one possibility for health care, they are having dependency imposed on them, often with high-risk side effects. The national health systems around the world are accomplices to this approach: in the United States, Great Britain, China, Japan, Russia, and everywhere pharmaceutical and medical-device lobbyists influence political legislation. Although politicians love to promise fully funded health care to their people, it is expensive—indeed, too expensive for most countries—but promising it wins votes. Unregulated privatization of health care, which is often posited as the alternative to regulated professional care, is not the only remaining option, however. Community-based care, using the energies of people—especially of mothers, when combined with professional input—is a third possibility, one that aims at preventing diseases instead of trying to cure them with dangerous drugs. It is far less expensive, and its first line of action is the prevention of illness.

Increasing evidence and experience from around the world affirm that community health workers (CHWs) effectively prevent a wide range of illnesses and can be very effective in fostering a foundation for positive health. Moreover, in areas where health facilities are few and are far away, they can effectively treat, and often prevent, serious illnesses, such as the leading causes of child death (pneumonia, diarrhea, malaria, malnutrition, and neonatal conditions) by promoting healthy behaviors and good nutrition. In a global mindset that sometimes views maternal deaths as something that can be avoided by a hospital-based delivery, CHWs can play an important role in reducing maternal mortality by promoting family planning; teaching pregnant mothers about warning signs; distributing, during the prenatal period, a medication to prevent postpartum hemorrhage for

women who deliver at home; and promoting cleanliness during birth and afterwards.

Community health workers are increasingly playing important roles in the identification and treatment of patients with HIV and tuberculosis. Approaches that empower groups of women and communities to improve their health also demonstrate increasing effectiveness in reducing maternal, neonatal, and child deaths in resource-constrained settings. The benefits of CHW programs and the empowerment of women and communities go far beyond their specific health effects and lead more broadly to important benefits for development. Since governmental resources are increasingly strained by conflicting demands (such as campaigns for the eradication of specific illnesses, and expensive hospitals for the elite), the best hope for communities is to organize and balance their priorities. Community-based care works, as shown by repeated examples in this book; it is the proven approach.[20]

Our fieldwork across the decades since our Narangwal research, conducting projects in China, Nepal, Peru, and many other countries, shows that most health workers, even those providing supposedly free services, are devoting more and more of their activity to selling drugs and promoting medical devices. Greed is driving mostly symptomatic treatments, and people are willing accomplices, because they want to stop being sick. As a result, often these health workers administer injections or intravenous solutions with minimally sterilized or unsterilized equipment, increasing the potential for the transmission of serious viral infections, such as hepatitis and HIV/AIDS, on a truly calamitous scale. Creating a balance of top-down control and community-based organization is the only plausible, affordable, effective response to these vast and imminent dangers.

The Dynamic of Conceptual Breakthroughs: The Simple-Complex-Simple Axiom

Our Narangwal experience contributed a vitally important insight to the SEED-SCALE process. Problems in the real world are complex, yet solutions through community action must be simple, so the people involved can cooperate. To address complex realities, simple solutions are essential. But finding simplified solutions is not simple. The change from complex, hospital-based intravenous drips into the scalp to homemade rehydration therapy seems an obvious move after it is made. But to get there required a complex analysis, and then repeated trials that examined the relative effectiveness

of a sequence of ideas and kept pressing to find ever-simpler alternatives. The science required to discover what worked in homes was as complex as that for high-tech hospital interventions—and, it must always be kept in mind, this approach challenges vested interests. Although the benefits in cost and convenience are greater for the patient, the economic returns to health providers are far smaller.

The economics of simplicity underlies the explanation for why research so seldom seeks simple solutions. Unless great quantities of a simple item can be sold, it is not profitable to pay for the complex research required to develop this simple answer. Over 90% of all health-research funding is focused on the chronic problems of the world's affluent people.[21] Hospital-based care makes more money than home-based care, even though home care brings better health and is more sustainable. Those garnering the larger profits do not want to give them up. Drug and medical-device companies, as well as doctors, need people to get sick.

To find answers that best benefit people, we return to the importance of partnership. The community-based efficacy that comes from simplified solutions depends on officials providing an environment that overrides the focus on profit that keeps solutions complex. But policies are not enough, either; in order to achieve conceptual breakthroughs toward simplicity, experts must do the research, and they must do so across time. Simple solutions are not silver bullets, but are products of research, time, and the team of experts who have developed not just the bullet, but also the gun, as well as figured out how to shoot effectively.

SEED-SCALE is a system that moves action toward simplicity, because it keeps the focus on community. It accommodates the simple-complex-simple progression by promoting a framework that creates feedback loops from community needs to partnerships with officials and experts. With official support and financing, excellent research-oriented centers can make the breakthroughs to find simple solutions. But this research needs to take place both in and outside the lab. To keep experts in touch with realities, these centers must be field based, such as those at Narangwal and Dhaka, not academic laboratories. This means a SCALE Squared center: both a field-based lab and an action hub that adapts and extends the breakthroughs to local cultures, the environment, and economics. The enabling environment of SCALE Cubed then supports an extension of these lessons throughout the region.

Saving millions of babies from death by diarrhea may seem to be a huge success. It is not nearly as helpful (or lasting), however, as integrating its treatment into a larger community behavioral change. The confidence and sense of commonality achieved by mothers incorporating such breakthroughs as tools within larger community actions is what leads to holistic well-being—which is much more than simply better health. Moreover, once it is achieved, one feature of holistic change is that it continues to pay its own costs (unlike mass campaigns that use up their budgets and then move on).

When people find a way to bridge the gap between basic and applied science, they engage the dynamics that drive our collective future. At Narangwal, researchers lived among the people in the villages they were studying. They learned what was relevant in their data by talking with their neighbors, by watching the babies breathe. Villagers improved their lives by gaining access to outside ideas and working with outsiders to find ever-simpler and more-affordable solutions. SEED-SCALE works because its annual cycle keeps bringing research action back in touch with local reality.

13

Out of the Shadows

Women in Afghanistan

Shukria Hassan and Besmillah Sakhizada

The challenges of our women in Afghanistan have been ignored for centuries, but they have also justified invasions by foreign armies, mobilized many millions of dollars in assistance, and have evoked pity. But, I ask you, has all this "help" helped? I write as an Afghan woman doctor, one who is from the most disadvantaged tribe of my country, the Hazara. I answer this question with "yes, help has helped, but while outside help is needed, what is most needed is letting us help ourselves." I wish the process were as easy as sending aid, or an army. My own eyes have seen how giving millions in funds and sending experts create problems more often than they bring help. We have been repeatedly invaded, but we are not helpless. With my own ears I have heard the stories of empowered women. Your eyes will now share those stories.

The achievements of these women was so satisfying that, years after my work (first told by me in stories below), my colleague, Besmillah, returned to the villages of the Yawkalang district. My narrative is followed by a report of what he found, told in the stories these same women conveyed to him. Ten years of "assistance" had flooded into our country from around the world. In most instances it came, was spent, and had little impact. But what really improved lives is described by the women in the actions they made and, as Besmillah's reports show, in the actions they still continue to make a decade later, driven by what they learned about capacities inside them as women. If you seek a description in more academic terms—not only how these women's and their families' lives improved, but also how actions done by them in these distant and discriminated-against valleys, and how the power of scientific proof of the work of women started the national program of family-health action groups—see Empowerment on an Unstable Planet: From Seeds of Human Energy to a Scale of Global Change.[1]

Early in 2005, I had the opportunity to meet Dr. Carl E. Taylor. He invited me to accompany him to the high summer-camp pastures the following day in some of the more remote mountain valleys in my country of Afghanistan. The idea was incorporate a health component into mosque-based literacy programs; health had to fit inside our cultural values. Families center around their homes, but communities center around their mosques. In Afghanistan, our lives have advanced across hundreds of years by growing out of our mosques. After a difficult two-day trip by four-wheel drive, we arrived in the remote Shahidan valleys. First we had to find the women, and they were in summer camp with their flocks.

The Hazara are poor and hard-working people, Shia Muslims. They have faced centuries of cultural and ethnic discrimination by the larger, aggressive tribal groups. They survive, pushed back in the mountains, on their scarce resources. Their irrigated land and their grain crops are periodically seized by the Kochis (a nomadic tribe), who have conducted raids for centuries, killing many Hazaras to this day. The Hazara people cannot afford weapons, and yet they were the first group disarmed by the current international disarmaments program, showing discrimination from the outside as well.

The Shahidan valleys are in Bamyan Province, home of the famous Buddhas. From 1998 through 2001, the Taliban invaded and totally destroyed the area, including Bamyan City and, of course, the Buddhas, and they leveled most of the houses in the Yakawlang district, where we were headed for our health work. They burned and killed even the people who tried to welcome them with a white flag, destroying homes with the people still inside, and pursued and killed anyone who tried to escape, looting their belongings.

At the time of our visit, the Hazara people were just beginning to recover from the brutal attacks. We were going to the summer pastures, called *aylaq*, where the villagers take their livestock to graze, and where they collect hay and fuel for winter. Each *aylaq* consists of several households from the same village. There in the summer pastures, the villagers set up homemade tents of old woven carpet (*gilim*) or sewn-together pieces of old clothes and blankets. Children, who now had a chance to go to school, remained in the villages, and some of the families stayed with the children.

We began to climb the mountain in the pickup truck. As we entered the valley, we noticed two men, dressed in dark gray Afghan outfits—the tra-

ditional tunic and loose trousers called *peran tonban*—coats, and dark brownish turbans that were coved with dust, camouflaging them against the stark landscape. They invited us to go see the water source for the camp. Walking toward the spring, more men joined us. Visitors, especially foreigners, do not often come to their camp. The water source was a shallow spring, surrounded by deep hay roots—this spring was the center of their pastoral life, which is why they wanted to show it to us. Melting snow and glaciers on the slopes above flowed down to this hillside. The men took us to a homemade tent where eleven women were gathered, wearing their traditional bright-colored shawls that covered their hair and showed their faces. These tents were their summer community. I also wore a similar shawl, leaving my face exposed, in respect for the culture. They served us tea and sweets, not only customary, but an expected ritual of trust that hosts and guests are both obligated to engage in.

We started inquiring about the number of children each woman had: which ones among them were living, and which ones had been lost to miscarriage, death, or illness. The stories were often sad, with miscarriages and many children who died at birth or in the first few years of life.

Marzia, a tiny woman, had lost seven of her ten children. Of the remaining three, she had two sons and one daughter. Three of the deceased children—one boy and two girls—were stillborn. Another, a boy, had suffered from convulsions, caused by an evil spirit or ghost, that caused him to die after three days. "My other three daughters died at one to three years old. I had no milk and could not produce any more."

When she was done speaking, the women said with laughter, "Aiye Jawad, now it is your turn to answer." She said, "My name is Sediqa, but in my family we call each other by the eldest son's name, so sitting here with me is Aiye Hussein, Aiye Juma, and Aiye Ali. It is a shame we lost our names, but we are also called by our husband's name, if not our eldest son's, such as Khatoon Zawar Ali Khan. I have seven children—four sons and three daughters. Last year I gave birth to a baby boy when eight months pregnant, but he died the next day." Sediqa then pointed to the lady who sat next her and said, "Now Khatoon Haji, it is your turn."

And so they spoke, and the circle had completed their stories by late afternoon. Professor Carl looked at his notes and pointed out that many of the children who died were girls. He asked, "Why were so many girls lost and not boys?" The women answered, "We do not know." One woman said: "It is

our life, it is not easy, children die, we have no other choice, we cannot go anywhere, we have nothing. We cannot grow wheat because of the many years' drought, and we lost our animals, too. Everything, each day, we do is to survive. Men collect fuel—by cutting bushes—and hay. We women look after the animals that are left and the children; bake bread; and milk the goats, sheep, and cows, which we use to make dried curd and butter to sell. Some of us spin wool to make *gilims* for our homes or to sell at the market."

Professor Carl asked: "Some of you mentioned *saya*. What it does that mean? Is it a disease?" A woman responded, "*Saya* is when a person has *napak* (impurity or sinful presence) that causes an evil spirit or ghost to enter the soul and body, which gradually kills the person." She then described how to tell if a person suffers from a *saya*: "They suffer from *bihosh* (loss of consciousness) and the hands and feet become stiff. It is similar to *mirgi* (epilepsy), although with *mirgi*, a person can continue to live, but not with *saya*. *Saya* is mostly seen among newborn babies and in women. There is only one kind of health problem in this place: when we come here to the *aylaq* in the spring, the weather is still cold and our children get sick and suffer from *sinabaghal* (pneumonia). We are too far away from the doctor to get help. In addition to the weather, we also suffer from the creeping dangerous animals—scorpions and spiders—that bite children and old people, which causes them to die if they are stung on the head."

At this point, another woman interrupted: "Once I gave birth while we were on the way to summer pasture. We got up early, just after midnight, all packed, and started our journey in the dark. By mid- to late morning, I began to feel the pains. I was riding a donkey, but I could not keep going. I stopped the donkey and stayed on a rock alone, while my family kept traveling. After laying on the rock, while I writhed, waiting to die, I finally gave birth. I had nothing to cut the cord, so I placed it on top of a flat stone and started beating it with the edge of another, sharper stone until I finally got it cut. Then I wrapped my baby with a cloth from the back of the donkey and my *chodar* (headscarf). It was late afternoon, and I had to get back on the donkey to catch up with the rest of the family." Almost as an afterthought, she stated, "*Ma na mofamom albad khost khoda ki zand mandom*" (My baby and I survived. I do not know. It was God's will that we should survive, so we did).

Some will read the above as tales of need. We, who came as visitors to the high summer pastures, as we listened, we realized that they were accounts of great capacity among the women. How then to strengthen the women in their capacity? This now meant working with village elders and *shuras* (village councils), for the process of meeting with these women had made their men angry. Cooperation became easier when we convinced the men that it was older women we were interested in. There was little danger when the men realized it was mothers-in-law we wanted to talk to.

On our next visit, we sat on the floor in the mosques, while making sure that the soles of our feet did not face anyone in the circle (to do otherwise is a grave insult), and tea was served with locally made sweets. I was fully covered, showing only my face. From those talks, permission came to start health-training classes as soon as the snow melted. The purpose of the classes was to teach methods that would allow their boy children to survive (and if any girl children survived, no one would object to that). A house was rented to bring the women together to participate in what we called a women's-only workshop. The house had a large center room, approximately 35 × 20 feet (10.5 × 6 meters). The floor was covered by colorful carpet made in the village, woven by women, and in this room, on the carpet, I gathered with the women, who sat against the wall on small mats. Toddlers ran around, while breast-fed babies were nursed. The way to the latrine went out through melting snow, so it was slippery and muddy, and the steps to the latrine were torturous and had no handrails. Although these women were mothers-in-law, their average age was thirty-five; some had grandchildren.

Our first challenge was to be accepted and trusted by the women—we all had to trust each other. The concept behind the workshop was to hear about their life experiences, including pregnancies and deliveries. Building understanding from shared pregnancy histories was an idea we had come up with while listening earlier, in the tent. We now wanted to take the information that had been so profound earlier in their previous stories, systemize the data collection, and make it scientifically rigorous. Since they never shared their stories with anybody, and were afraid of gossips and of being shamed in the village, one of the women who had delivered many babies said that this information should not go out of the room. We all made that promise to each other, so I now tell their stories using pseudonyms. We

agreed that no men were to be allowed inside the house, and we went to check that the doors were locked, to protect us.

The participants started telling their pregnancy histories. Each woman began her story from the youngest, most recent child and went back to the eldest. We wanted information about all pregnancies, so this included children who had died, even before being born. We all ate and slept in the workshop room, and we took turns with the chores; everyone participated in preparing the meals and keeping the place neat and clean. Each woman was given toothpaste, a towel, and a toothbrush and asked to practice hygiene, as well as not to spit tobacco juice in the room. We were sharing life. It did not take long, as the stories flowed, before all of us were crying and laughing and enjoying the process. I created a matrix for each woman in the notes that I kept: what happened during each pregnancy, and when.

One of the older women, Masuma, said that she would start. She was asked the first required question in the matrix, "How old are you?" She answered, "I do not know." Then she was asked, "How old were you when you got married?" She laughed and said, "I do not know." Then she was asked, "For how long had you had your period when you got married?" On questions about their bodies, the women could remember. She answered, "Two years." We figured, as a group, that she was sixteen years old when she got married. She was asked about the age of her youngest child and her oldest. She said, "The youngest is two and a half and the eldest fifteen." From that, her age was now calculated to be thirty-five years old. I share this part of our method because it shows two things. First, the woman have accurate knowledge when they can express information about their lives in contexts that come out of the events in their lives. Second, for this pregnancy-history approach to data collection that we were evolving, it was important to stick with the research method, as prescribed by our matrix.

Asked to talk about her most recent pregnancy, Masuma responded: "It was difficult. We had just returned from the other side of the mountain, after the Taliban attacks. We had nothing. Our cattle and sheep were gone and our houses burned. We were given two windows, two doors, and beams to build our homes, and had to find the rest of the materials ourselves. I had to take care of my in-laws and my four children. I ate the leftover scraps of bread and tea throughout the whole pregnancy. The delivery was difficult. I was exhausted, even before labor started. According to custom,

I was not given anything to eat and drink during my entire labor. To protect the carpet, so my blood would not contaminate it, my mother-in-law pulled the carpet aside in the corner of the room, and I was squatting on the dirt floor with a rag underneath."

"After three hours, my husband sat behind me, wrapped his turban around my waist, and pushed with all of his strength on my back and pulled with his turban. I fainted as my son was born, and my mother-in-law caught the baby. She cut the cord with knife and tied it with a piece of wool. The placenta was stuck inside me for several hours. My mother took my son, wrapped him in a cloth, and fed him butter. I was not allowed to feed my son for three days. I expressed the milk and it, the first breast milk, was thrown away because it was considered bad for the baby. I was not allowed to eat, because my son had jaundice. I was very weak and could not produce enough milk, so my son was fed butter, tea, and, occasionally, I had some milk so I could nurse him. I was allowed only bread and tea until the jaundice cleared; then whatever was available from the men's meal I could eat. During the first forty days, if anybody wanted to visit me, the baby was taken out, away from me, to protect him from an evil spirit."

Masuma went on: "My five-year-old child is a girl, and she is very sickly. I was pregnant with her when my husband joined the Hezbi Wahdat local militia to fight the Taliban. We had a severe drought and could not grow anything that year. Whatever we had in the way of food was given to the local militia, so they could fight the Taliban. We lived in fear all this time. Then our local militia was defeated by the Taliban, and we escaped to the other side of the mountain. The trip across the mountain was hard; my other daughter, who was seven years old, got sick, developed pneumonia, and died. We could not bury her properly, so my husband buried her on top of the mountain. The next child was born very quickly. We were hiding there in the mountains. She was very small, and we had no thing to eat. Villagers helped us with some food, set up a tent, and we lived there until the Taliban left." Masuma was asked about her other pregnancies, and she said that sharing these was too painful for us to hear. She had a miscarriage when she was about four months' pregnant, and she bled for a long time.

A second woman started her tale, and I include only part of it, just as I did with Masuma. "Then there was a girl child. I loved this daughter very much, and she grew up and did not give me much trouble. She was like a

younger sister to me. She even took care of my goat and sheep on the hillside and helped me with house chores until she married. Before that, with my first child, I immediately got pregnant right after I got married. During the early part of my pregnancy I was sick and vomiting. I could not eat anything and still had do all the work that was expected of me: cooking, carrying water, cleaning the barn, milking, making butter. The whole family lived in one room. I had no chance to rest, being told by my mother-in-law what to do."

"Labor started at midnight with that first child. My mother-in-law lit the lantern and sent my husband to call the *daya* (traditional birth attendant). She had helped many women in the village with their deliveries. My water broke, but the baby did not come for hours. The birth attendant called to my husband to put me on his back and jump up and down. I was screaming and crying, and he grew tired of jumping and put me down. Then the birth attendant, sitting on my chest, began pushing with her feet against the upper part of my belly and pushed the baby out. He was a boy, and brought a lot of joy and great celebration. My father-in-law shot a gun into the air to let everybody know. My mother-in-law was taking care of my son; after three days she allowed me to nurse him. Any time he cried I was blamed for having done something wrong. Both of my sons are very special. My eldest goes to school, and helps his father collecting bushes from the mountains for fuel for the fire."

With two full pregnancy histories, I then temporarily stopped the workshop and explained their anatomy to the women, as well as talked about how conception took places, how the fetus grows, and the natural progression of labor. This included an explanation of cervix dilation, so they understood that pushing before the cervix dilates is dangerous for both the pregnant woman and her baby. I emphasized the importance of eating and giving the woman something to drink both while in labor and after the baby is born. To help them understand, I reminded them about cows, and the importance of feeding and giving them water so they can be milked. I told them that they, the women, were as important as a cow and should be fed and given something to drink. I also asked if they ever sent their husbands and sons to work without feeding them.

This might seem like just stories, and certainly the order in which the children's births were presented and the side events that were related complicated systematic science, but using my matrix allowed me to clarify the

confusion. The women told their narratives however they wanted to; it was my job, in partnership with the group of women, to put all the stories into their correct places. Four activities were under way with our pregnancy-history process:

1. We were helping the women feel strong and proud of their womanhood and the challenges they had overcome.
2. Although told here in a colloquial voice, we were gathering what would turn out to be exceptionally accurate life data on these women, their child bearing and rearing, and the community's life statistics.
3. By stopping their stories after every two women and then explaining some medical facts, a structure was created. By employing their own life narratives in addition to collecting data, we were using what they shared to educate the women about their health and what actions they could take, with the resources they had, to improve family care and well-being. Science was being translated into local experience.
4. In gathering this group, we had predicated their selection on a representative sample from across the region and from differing neighborhoods in their communities. The women, who were "older" and hence respected as elders, would, after these sessions, be sent back to their respective communities, so the education given to these women would extend their new knowledge region-wide as they organized SEED-SCALE action groups.

Now, in a second cluster of women, Khadija was anxious to tell her story. She was young, approximately in her mid-twenties, and had had four children already. Her youngest was with her, whom she was nursing while she was talking. The baby was wrapped with several layers of rags, with both arms and legs extended so they could not bend, then placed on a firm mat and tied to it with strong cord. I asked, "Why is the baby tightly bundled?" Khadija said, "Tight bundling keeps the baby warm, calm, and easy to carry." This gave me an opportunity to discuss the bundling. I explained that a baby needs to exercise, stretch his arms and legs, expand his lungs and breath better. I was also able to talk about why so many babies died of pneumonia. These women's stories were becoming my science lessons for them.

Khadija was the youngest member of her family, and her parents did not arrange her marriage, wanting her to stay at home with them. She

said, "I had several suitors who pressed their desires, so I got married at age seventeen. My husband was also very young, and he is a good man. I am happy with him. I am still living with my parents-in-law and my two young brothers-in-law. When I got pregnant with this child, I had to stop nursing my two-year-old son. This pregnancy was not difficult, but I had a lot of work to do in the house. I did not eat well, because I had to feed everybody else before I had food for myself. I had to take care of cows, chickens, and sheep; wash clothes and dishes in the stream; and carry water to the house. I had an easy delivery; the pain started in the middle of the night, and by early morning my baby girl was born. The only problem I had was that the placenta stayed inside me for two days, until I had a bowel movement and it come out with the stool. My mother-in-law took care of the baby while I had to do the household chores, until I was able to nurse her.

"I got pregnant with my third child, and then my husband was gone a lot to the city to find a job and work. I gave birth to a baby boy while he was away. The whole family was happy; we had a big celebration. My son got sick when he was three months old; it was wintertime then and the snow was high, so my husband was unable to come home. My father-in-law brought some medicine from the bazaar, but it did not help. My baby, which his father very much wanted to see, died of pneumonia. So I was blamed by village people, who said that I must have sinned and been punished by the baby's death. My next child was a boy; he is five years old. He is healthy, and I had no difficulties while I was pregnant, and I had an easy labor, too. But he was very sick when he was three years old and had diarrhea last summer. I am worried that he might get this sickness again this summer."

She asked those of us who were in the group, "What can I do to help him if he get diarrhea?" The stories these women were sharing made it clear that diarrhea was very common, and that it was the reason why many children had died. And the women wanted to know what they could do about it. The traditional way of treating diarrhea is to stop nursing and not feed or give anything to drink to the baby. I explained the importance of feeding a baby during a bout of diarrhea, to keep the infant hydrated. They understood the simple way I showed them of preparing a wheat/salt solution: I took a matchbox (or a tablespoon) of wheat flour and added that to a cup of boiled water and a pinch of salt, mixing it together. We practiced giving this medicine, which is as good for diarrhea as anything a pharmacy has, to the babies in the room. Then I talked to them about the spring in

the high pastures, which was the center of their community there. They were proud of it because it was their water, but it was also the water for their goats and sheep. The animals drank the same water winter and summer as the people. Maybe that water, shared with their animals, was the reason they so often got diarrhea in the summer?

The next to speak was young woman in her early thirties, who had five children: three daughters and two sons. Hamila said: "I got married when I was a child. My mother had two daughters, my youngest sister and I. My father was a farmer but had no land and worked for a daily wage on other peoples' land. He was forced by a local commander to join the battle against the Russians. He never returned. We were poor and had nothing to eat; it was difficult for my mother to feed us. After some time, my mother's relatives advised her to remarry. They found a widower. So my mother was married in another village. But my mother's new husband told my mother that she could bring only one of us with her. So my mother gave me to a man who was a very poor farmer, who, like my father, worked on the land for daily wages. I was maybe eight or nine years old. My mother had told him that he could marry me later, when I was past being a young girl. I stayed with my husband, learned baking, cooked for both of us, and cleaned the place. He used to take me to the field with him. I did not know anything about marriage."

"One night he slept with me. I felt a terrible pain and fainted; then, when I woke up, I was soaked in blood. My husband was next me and was crying. As soon I open my eyes he called out 'Halima, Halima' and tried to feed me. I was bleeding for several days and stayed in bed. He was taking care of me and fed me." Halima was weeping as she shared her story, and then continued: "I now fight with these women and tell them not to marry off their daughters when they are still children and do not know anything about marriage. I had my first period after maybe another two years or so. I did not get pregnant for three or four years. Then I got pregnant with my first daughter." Halima pointed to an eleven-year-old girl standing by the door, with the same rosy cheek and golden hair as her mother. "I realized I was pregnant when my belly got big and people started asking me if I was pregnant, even though I did not notice the baby's movement. When my birth pains started, the birth attendant asked me to drink melted butter. She said it greases the baby's head so it comes out easily. I could not drink the whole bowl. I was in pain and kept pushing as she instructed, but I could not deliver."

Halima then said: "There are rumors that they are going to build a clinic for us. I hope they build the clinic, and our children can get vaccines. But there are disputes and disagreements between the two villages about the clinic's location. Both villages donated their lands. God knows which village is going to win. Last year they brought a few truckloads of stones for the foundation, but the *sehat-e-ama* (directorate of public health) did not allow the clinic to be built in our village. The upper-village elders went and met the *raies-e-seaht-e-ama* (public health director) in Bamyan and they stopped the construction." The woman next to Halima said: "You are supposed to talk about your pregnancy, but you keep talking about the clinic. Stop talking about it and let us all talk about deliveries. I am waiting for my turn."

In this systematic way, the workshop went forward. As more women shared their stories, they also shared information with each other from the process I was using: two women at a time told their histories, and the evidence from them was then explained with science. Through the five days of the workshop, with every waking hour, we increasingly worked together to explain female reproductive organs and their function, as well as all the other bodily systems and their functions, emphasizing the actions that each woman could take with the resources at hand. They had cut up sheep and animals and had accurate ideas of how animal bodies worked, but they had not often connected that knowledge with their own bodies. I built on what they knew from their own lives and the lives of their animals.

I explained that more than half of all health, in whatever community a person lives in, grows from health-care actions families can make, if they want to. The stories I have shared here have centered on women's health issues, but with twenty women in the workshop, almost all major health conditions got covered: those affecting men, women, and children. In reproductive health, the women learned about the importance of nursing the baby immediately; the benefit of the baby's sucking, which constricts the uterus and controls the bleeding; and the importance and benefits of colostrum (or, as they call it, *fella*). They learned about infections and what could be done about them, about trauma care, and even about domestic violence. Not only was this system-within-a-system a way of gathering information, but it was also a way of passing on new knowledge to the women. Professor Carl and I worked out this method by drawing on other international efforts and on the experiences of our first trials there in Sha-

hidan Valley. After those trials, we had a process where we could train other Afghan women physicians, so they would be able to use it to lead women's groups.

Besmillah Picks Up the People's Stories, Sharing What He Finds a Decade Later (November 2014)

On the way to the Yakawlang district in Bamyan Province, it was really great to see that the road from Bamyan to Yakawlang is now paved; it took about ninety minutes to get there. For my last visit in 2008, I traveled six hours; when we had done the first fieldwork with Dr. Shukria in 2006, it had taken more than a full day to make the drive. Eight years of international aid had brought about this happy change.

My driver was not feeling well, so we stopped at the new Siya Dara Health Clinic. Our situation suggested that we were employees of a nongovernmental organization (NGO), so the clinic staff began to speak of the NGOs. It quickly became clear that they were upset with NGO work, and I asked one of them for details. He replied: "Every group is different. Some of the NGOs provide literacy courses, a few others work in the areas of agriculture and livelihoods, and some other organizations work in the health sector." The man continued: "For example, NGO (X) has offered literacy courses for females and young girls in our village since 2010. But while there is work, maybe there are not benefits. One day in a public meeting with staff from NGO (X), I said: 'Your work doesn't have any significant effect on our people. For four years, your NGO has provided literacy courses for the women and girls, who have not learned anything. I can surely tell you that they cannot even read and write their own names!' The employees of NGO (X) did not accept my statement and pointed to one of their students, saying, 'She has learned how to read and write from the course.' But the girl immediately stood up and said, in answer to the NGO employee: 'My knowledge is not what I learned from you or your course, but what I learned from Mullah Azizi's courses during 2006. Those were years when Future Generations Afghanistan had literacy courses during the day, and at night I was attending women-only workshops. We were learning in a different way. Your NGO just does daily visits, and runs classes, but our people have not learned anything from their work.'"

The clinic staff did not know that I had worked for Future Generations Afghanistan, but I was so happy hearing this history that I could not stop

myself from mentioning that I had been employed by Future Generations Afghanistan, and that I came to visit the women who were trained as community health workers (CHWs). I asked: "Are they still active or not? Are the people happy from what they do or not?" The clinic man said: "The women trained by your organization have done much; they still encourage people to observe their hygiene and health. Since then, more CHWs have been trained, and they do health propaganda. Our village is clean and people try their best."

Hearing this news was welcome to me, and we drove on. The weather in Bamyan in November is cold, but I settled into Mullah Azizi's home and, thanks to a kind friend, had wrapped my shoulders with a blanket as I began my interviews. On November 23, 2014, after morning prayers, Mullah Azizi and I discussed how to reach all the women. Azizi told me that due to the winter weather, we would not be able to get the CHWs to his house; some lived far from it, and heavy snow was on the way. It would be easier for us to go to those houses through the snow.

A woman called Bakhtawar lived in the first house. When she saw Mullah Azizi with me and my other colleague, she greeted us and invited us in for green tea. Mullah Azizi, though, entered her house first and, after some seconds, I heard his voice saying, "Besmillah can come inside." I followed, thinking, "Is Bakhtawar's husband at home?" We entered her house without telling her the purpose of our visit. This is now a somewhat modern woman, I thought, as Bakhtawar warmly welcomed us to her house. We also thanked her, once we were sitting in the room.

I remembered coming to this house in 2008, when we worked hard to survey every house in the village, to do a complete census. I was trying to compare the current situation with the past condition of the house, which was not possible because there was a 100% change. The room was completely clean and neat, and the outside area was tidy and clean, too: no cow dung and garbage on the walkways. One more thing surprised me—there was no bad smell in the room.

As I was thinking this to myself, I heard Mullah Azizi introducing me to Bakhtawar. He told her, "He is no longer with Future Generations Afghanistan, and he is here to help me identify the women trained in Yakawlang." So I started by saying that I was here only for academic work, not to promise them any projects or funds. Bakhtawar smiled and replied: "Even for personal or private issues, please do come to our village, we will be

happy to see you there. It has been a long time since we heard from your group, and no one visited to see how your projects and training changed our lives. Many lives were saved because of the knowledge passed on to us." Mullah Azizi then asked, "Could you please send someone to gather your coworkers in your village?" Calling her son, she said, "Asad, go to Qamar and Gul Jan's house and tell them that colleagues from Future Generations Afghanistan are at our house and want to meet them."

Mullah Azizi asked for permission to start the questionnaire. Bakhtawar thought we would be asking her technical questions related to the training she got years ago, so she said: "I am ready, but I might not be good in answering your questions. But this does not mean I am not good at practical matters. I remember my lessons and am ready to respond, by demonstrations, to what you will ask."

The first question was about the trainers. She asked, "You mean the short Pashtun woman who came after Dr. Shukria? Her name was . . . " I reminded her and said "Zarghona." Bakhtawar smiled, saying, "Yes, Zarghona, so kind and intelligent; we all loved her." We were talking about the trainers when two other women entered the room, smiling and saying "Salaam." One asked me if I was designing a new project for them, but I clearly told them that I was here only to see the impact of our project.

"But your work is the best ever in our village! Your project not only saved our lives, but even the lives of our animals. Now we know how to live." This gentle woman paused. What she had just said connected with what I had studied about SEED-SCALE. SEED-SCALE teaches that living is about more than health; living is holistic, and interdependent, and a sustained process. These women had learned that, as well as that health is more than an absence of illness. Bakhtawar went on, "I can assure you that all households in our village remember what your organization has taught and we continue to use it. What you trained us for makes us feel proud."

I asked Bakhtawar, "Why do you continue to do your job, even if there is no NGO supporting you? What is pushing you?" She asked me instead, "Can you tell me why an old man came from United States merely to help us and teach us the way of life?" I told her that Carl Taylor loved to help people; it was his life's goal to save peoples' lives by sharing his knowledge. "He is the same as me," she smiled. "If an old man can come from across the seas simply to help our people, and put resources into and make time for our people, then why should we not also do that? We are already here, with our feet on

the ground. We live here, so we know about this place. Let us bring what we have learned here. Is that not that what makes life better?"

I clapped. The other women in the room clapped, too. Then I told them: "The work you are doing, that you were trained to do, is now used as a example, and the example you started is spreading all across Afghanistan. We call this way of caring for each other family-health action groups. The laws of our country have changed because of your work. It is as you said, 'To help our people, we must take our resources and give our time for our people.' You gave an example, and it changed our country's policies. It has been described in this book." And I opened *Empowerment on an Unstable Planet* and showed it to the women; they crowed around. They could not read the English, but looked at its photo of them using a doll to practice delivering a baby.

I then asked, "Bakhtawar, could you please share a story of how your work has continued?" Her story began: "Two years ago the village had a problem with fetching spring water from 1,500 meters (4,900 feet) on top of the mountain, and this problem became even bigger during the winter season. In our village, men do not care about fetching drinking water, as this is the duty of women and children. During winter there was even danger of wolves and snow avalanches. So, we women, plus our children, were facing problems. Men never cared. Our women's action group—did you say that the new name is family-health action group?—got together and discussed things, and we tried to solve the problem. Members of the action group had gone off studying elsewhere and had seen the clean spring water from Dahani Kij village, implemented by Future Generations Afghanistan. We all agreed to carry this information to the men. The next day, the men wrote an application and submitted it to an organization, and some days later the organization came to our village. We said that if they also provided a water-supply pipe and cement, the same as they did in Dahani Kij, we could contribute some of our men to build this in a short time, with a small budget, and have it be of great quality. The organization accepted, we all worked together, and now we have safe and clean water close by our houses."

The women, as a group, kept talking, doing an analysis of the village's health status, explaining that in the past, "there was no toilet in the houses, nobody cared for cleanness in their house and in the village. For newborn children, the possibility of remaining alive was very small, and in the past

it was hard even for adults to survive. But now, after understanding that health is our responsibility, and that it comes from our behaviors, not from action at the clinic, a 100% change has occurred. Before, when the cows or sheep were getting ill, we slaughtered them before they died and distributed the meat in the village, so everyone cooked it at their houses that night. But now even the animals do not get sick, so we slaughter them only when we need meat."

She continued: "In the past few years, mothers and their babies here have not died due to illness. Now everyone in our village and the villages near us understands how pay attention to their health and keep their houses and children clean. We have proven to ourselves that health comes from ideas in the mind, and that our mind controls what we do—this is our responsibility, as Dr. Shukria taught us. Even if someone wants to build a new house in the village, before they do any other work, they build a toilet, to prevent pollution in the outdoors where their house will be built. We have had cases where people wanted to sell their house and migrate, but they could not sell their house until a latrine was built for the house. Health comes from how we live."

Mullah Azizi and I moved on to other villages, filling out our surveys. In Noorka village, we talked with Qamar, who was trained as one of the community health workers. Qamar was amazed that Future Generations Afghanistan came back to her village after many years. "When Future Generations Afghanistan left in 2006, I never let myself and my women stop the jobs that saved our families and our people. We decided that even if the organization is not here, we can continue. We must become the organization. So, we had to learn. We learn more when outsiders come. That makes us travel to villages, whether in summer or winter, and help our people transfer what we learned in theory by learning through practice."

Qamar continued: "We learned how to learn. We got help and organized literacy courses. We got help and organized medical workshops, so we could solve our problems when the organization was not here to bring us medicine. Because we did not have the money to give out free medicines, we decided patients should buy their medications, so we were not depending on organizations to give it to us. We remembered what Dr. Shukria, who had come here earlier, had said, 'Knowledge and skills learned inside cannot be taken from us.' So now we keep learning more. All that is making us more able. Our new knowledge does more than stays, it also grows—knowledge is the

gift that grows, not the supplies—and we should teach this gift to other people. So, this is how we continue."

The group had relaxed, and a woman in that group said: "Sometimes it is funny. One day when I was leaving home to attend the training, my brother asked me, 'Where are you going?' And as I was not familiar with medical terminology, I tried to say I was going to study *kar kon sehi* (CHW), but instead I said *kon kon sehi* ("healthy ass fucker"). My brother laughed a lot that day, and he is still asking me, 'What is your job, my sister?'"

Ms. Goljan, also from Noorka village, said that, if we were talking in this honest way, she had a similar tale about saving someone's life, because the CHWs share their experience and stories, and sometimes make house visits together. But after that private joke, she shyly added, "I want to speak about childbirth for another woman, but I am sitting in front of you three strange men." I wondered how to make this woman feel comfortable, so I asked her, "Do you know Dr. Zarghona?" She replied, "'*Aree mishnasoom . . . amo zan awghoo siya chera ra mogi*' (Yes, of course. You are talking about that Pashtun woman with a darker face). She was our teacher." I then said, "Do you remember me being along with Dr. Zarghona?" She paused: "Oh, are you the one who was bringing medicine and filling out questionnaires from us? You must be Besmillah . . . but you are chubby now." Everyone laughed.

She went on: "Dr. Zarghona had the best method for teaching. She taught from what we already know, teaching us from our lives. That way we learned about living, so now we understand how to keep our houses clean, now we know why defecation out in the open is bad. I can still remember that once Dr. Zarghona gathered all the women of the village and told us to collect garbage and clean the village. After we picked up all the garbage, even that which was far from our houses, she advised us to burn or bury our waste and garbage. From that day to this, our village has stayed that way." She looked at me and asked, "Did you see any waste or garbage in our village?" I clapped, and all the women joined in.

Mullah Azizi asked her, "You were about to share a memory of your work that saved the life of somebody?" She smiled, whispering to two women beside her, "Who should share the story of Ali's wife?" The other women told her to go on. I said, "Only share any story where you feel comfortable." She was smiling as she said, "Ali's childbirth, I might share that story with you. Last year, one day Ali's mother came to my house in haste. 'Please come to my house. It is an emergency. Ali's wife has trouble in childbirth.' When I

reached their house, I saw our local midwife, Qabila, there, pushing the stomach of the woman. I asked, 'Qabila, what are you doing?' Qabila answered, 'The baby is out, but the placenta is still inside, so I am pushing her stomach so that the placenta comes out, too.' I asked why they didn't take her to the hospital. 'We couldn't find transportation, and did not have enough time, too.' Then I noticed that the stomach of Ali's wife was expanding, getting bigger and bigger. Qabila said, 'Bad air has come inside.' But I said, 'Qabila, please let me help. Let's wash the baby's face and mother's breast, then put the baby on her breast to suck.' And as that was starting, people were relaxing, and I knew the sucking was helping. I sat beside the mom and slowly massaged her stomach for a while, asking the woman to push the placenta out of her uterus. And after four attempts, the placenta was out."

In Siya Dara village, we were talking with Amir Zawar, Fatima Ahmadi's husband. We had asked for permission to interview his wife, but he started talking: "Your organization had lots of effects on cleanliness in the houses and the village. Children and women are healthy, and they rarely get sick. Your training taught us about vegetables, and you distributed vegetable seeds, so we have our kitchen gardens; you taught us how to plant new things, too." He pointed with pride to a spring beside his house: "We built this spring from our own village's budget a few years ago. Before, we were never ready to spend our money on spring water. We did not know the value of clean water and instead got water from the stream. We did not think of keeping a clean pool of water, where animals cannot reach into it. My wife pushed me to bring this spring water near my house. I and all the villagers now drink from here. It is such good water, and I am sure that you will not find such water as this in Kabul." I said nothing, while he went on: "You know, before in our village, we never used soap for washing hands, but now we use soap after defecation, after working with animals, or after cleaning babies' bottoms. Our women know to keep the house clean, as well as the kitchen, utensils, the house's outdoor area, and even the barn. Most of the women know the treatments for diseases such as diarrhea, pneumonia, fever, and some female issues that even I do not know about."

Amir Zawar continued: "This spring is built only because of the hard work of the women you trained. But to get it was difficult. We had a spring about six kilometers (four miles) away from our village, and we thought we needed an organization to bring us water from that distance. Then next we thought, 'This is our responsibility; we should not wait for help to come

from outside.' I called the elders together for a meeting, estimated the price, and collected the money from all the villagers. The women had talked to their men, and that helped encourage their cooperation. Change follows when you know the value of something. New values are what we are learning, and because we see the benefits our earlier actions created, we are working with new values now."

14

Evolution of a World Training Center

Jamkhed, India

Mabelle and Raj Arole

> I am a Dalit [below-caste] widow. As an outcaste I used to think I was a nobody. I lived in constant fear because I was treated worse than an animal. My son died when he was less than three years old, and I was blamed for it and sent away by my husband. My parents made me marry an old man who had tuberculosis; then he died. I returned to my village in shame. I lived in darkness. To support myself I swept and cleaned the village and did hard manual labor. I received a pittance. Even dogs were welcome in the houses, but I, as a Dalit, was not. Then, along with many other women, I decided not to accept this any more.
>
> Lalanbai Kadam

As young doctors, we made a commitment to each other that we would devote our lives to improving the health of the poorest of the poor in rural India. After graduating from Vellore Christian Medical College in 1959, we worked in a rural mission hospital. The hospital flourished and expanded. From this base we went out into the villages and held village clinics. To our dismay, we found that our hospital and our village work were having little impact on the health of the people. Infant mortality continued to be high. Most diseases we encountered were preventable. Many women had problems, such as obstructed labor, and then came in to us too late. We started questioning the top-down, doctor- and hospital-centered health-care approach. Learning from the collective wisdom of many pioneers with similar concerns, we planned a program that would involve communities.

Beginnings

In 1970, we were looking around for an area where people were interested in starting such a health program. An enlightened political leader in Jamkhed, a community-development block 5,500 square kilometers (2,125 square miles) in area, with 110,000 people, in the Ahmednagar district, located in the state of Maharashtra, invited us to visit. Local officials wanted to start a hospital to take care of obstetric and other emergencies and in general provide relief from pain and suffering. We explained our intention of working with the people to improve health through preventive programs. The leaders were not impressed. Lacking other candidates willing to help, however, they emptied a veterinary dispensary in the middle of a cattle market and provided a couple of sheds to start the "hospital."

Soon a woman was brought in with a ruptured uterus, and we had to operate on her to save her life. We followed up by developing direct links with her and other patients' home villages. Using curative services as an entry point, we came in contact with more and more people. Gradually we expanded to other villages. It soon became evident that poor people were interested chiefly in relief from unbearable pain; illnesses that were not painful were mere irritations. When the pain was gone, they were aware of other pressing needs. "We need water; we need jobs so that we can buy food to kill the hunger pangs, and then we won't have to migrate to cut sugarcane." "You ask us to wash hands, to use soap. Where is the water? Do you know the cost of soap?" they challenged us.

We had to redefine what we considered to be the scope of our work. As a medical team, we had to think about the effects of poverty on health care. So we decided to live on forty-five rupees (about US$7) per month, the prevailing average wage at that time. We were in for many surprises: soap cost almost two days' wages, and in that desert area the amount of water needed to flush a toilet just once cost more than a month's wages. But the biggest shock to us was that, living at that basic level, we considered our need for food and water to be more urgent than our need for health interventions.

Temporarily setting aside our health agenda, we focused on getting safe drinking water for the surrounding communities. We found an interested group and obtained their assistance in drilling tube wells in thirty villages in the Jamkhed area. The Dalit (below-caste) villagers were concerned that they would not have access to the water if the wells were lo-

cated in the upper-caste parts of the villages. We took a water diviner into our confidence and asked him to walk through each village, but to divine water only in the Dalit section. More than 150 tube wells were drilled in these areas. Rich and poor, people of all castes, came to the wells.

In providing this life-giving service and making it accessible to the neediest people, we established a success to build from. But we knew that to carry out our project, we needed more than government support and help from nongovernmental organizations—we needed the people, and, although poor, there was a lot they could contribute through the great wealth of their energies. Larger systems had to change, and by using the people's creativity and persistence, change could be grown from that. Health improvements required community-wide action to protect the physical environment and stop harmful social practices. Religion, caste, and politics divided rich people from poor. Starvation and malnutrition resulted more from rigid social attitudes toward women and children than from an actual shortage of food. To start the momentum, it was vital to create partnerships of all the people, and to sustain that momentum, it was important to prevent confrontations.

We started informal volleyball games, which brought people together from all groups in the villages. Sports bring out peoples' energies; they are fun! After the games, both onlookers and players stood around and talked. These informal groups were then organized into farmers' clubs, which included not only farmers, but also the landless poor. Government extension workers, acting as partners, offered seminars and training in dry-land farming and primary veterinary care. At that point, people were more interested in the health of their farm animals than in their children's health or their own. Then, as their more pressing life needs were addressed, people became interested in human health.

Assessment, Analysis, and Community Action

In 1974, the farmers' club members and teams from the hospital project started a health survey of the villages. The collection of data transcended local factions. One villager recalled: "We saw the survey as being for our own good, so we made it accurate. Each of us took one area of the village and filled in all the information. No family was left out. There were questions about the immunization of children and whether they had been ill in the past two weeks. We reported any child's death in the past twelve

months and details of how the child had died. We assessed the nutritional status of children by measuring their arm circumferences. To our surprise, many children we thought had a severe illness turned out just to lack adequate food! There were questions on pregnancy and family planning. Because we were from the village, we knew who was missing at the time of the survey, so we went back and questioned them later."

With that data providing a solid starting point, the two of us engaged the villagers in a survey analysis to help them understand the causes and effects of disease. With this knowledge, the villagers began taking action. At a public meeting afterward, one villager reported: "We used to believe that children did not thrive because of a curse from God. When we looked at our surveys, we understood that the problem was lack of food and preventive care. That made us organize a community kitchen. We monitored the growth of our children by weighing them every month and plotting their weight on a 'road to health' card."

In these villages, environmental quality then grew as a priority. Many villagers experienced repeated attacks of the fever and chills associated with malaria. Diarrhea was common. These and other conditions led people to understand the need for better sanitation. In the words of one village man: "Our data became more powerful as people gathered more facts and learned to use them. Eighty percent of our families in the year before had had at least three episodes of fever with chills. We learned that if we got rid of the puddles made by wastewater and composted our rubbish, we could reduce the breeding of mosquitoes and flies. Previously, we had spent close to ten rupees every time we got these fevers. The more we talked, the more we agreed: why can't we clean up the village? Farmers' club members dug soak pits that drained away standing water, and the owners provided a filling of sand, broken bricks, and a plank to place over them."

Women, Health, and Social Change

The farmers' clubs demanded that women be trained as village health workers (VHWs). "Educators or professionals from the city speak an educated language," they reasoned. "Our women will accept someone from their own community whom they trust." The connection between the status of women and village health became more apparent. One VHW, Sarubai, described her experience: "I was married when still a child, got

pregnant at fourteen, and, as is the custom, came to my mother's house in Rajuri for delivery. I was in labor for three days. Finally a *dai* (traditional midwife) arrived and said the baby was too big and I would not be able to deliver normally. The only way to save my life was to remove the baby from inside me piecemeal. I remained weak and ill for months. During that time I never heard from my husband. Later he sent word that he did not want a woman who could not produce a living child. I became an outcast, unwanted, uncared for, living on the charity of my brother. I was too young to bear a child—only fourteen—and I was a piece of property. I was thrown off by my husband." Another VHW replied, "At least you lost your baby. My daughter has two healthy children. She needed a caesarean operation, and now her husband has sent her away, fearing that she won't be able to do hard manual labor and carry heavy loads because of the operation."

When our work began, women from different castes were not permitted to socialize. They were viewed as the keepers of tradition. Centuries of subservience had made them accept their place; they were trained to suffer in silence. How could lone village health workers change these attitudes? The VHWs began to meet with women for a couple of hours every week or two. In the beginning, only eight or ten women from a village came to the meetings, never sure whether their husbands' families would allow them to continue. Sarubai spoke of how she organized women in her village: "In the beginning I convinced seven women to get together. We gathered in one woman's home, sang songs, and listened to each other. In between, I taught child care."

More and more women joined these informal groups in different villages. As they began to take their gatherings seriously, they decided to call their groups *mahila vikas mandals* (women's development associations). Discussions of health and social conditions soon gave way to talk about the need for money. The money was not for themselves, but for their young children who needed food or medicines, and for older children who needed books and school uniforms.

Traditionally, when village women needed financing, each woman contributed a small sum to build a fund; at the end of a given period a name was drawn, and that person received the pooled contributions. Eventually every woman had her turn. The *mahila vikas mandals* modified this system

so that instead of being based on a lottery, the money went to the woman who needed it most, in descending order of need. Often the money bought food or treatment for a sick child. Others used the money to improve a vegetable plot or to produce poultry, market vegetables, or dried fish.

As membership increased, women realized that they had greater power as a group than as individuals. Health workers introduced social issues, especially the problems of women and girl children. They asked why daughters were treated differently from sons, or why girls were not fed properly or sent to school like their brothers. They talked about alcoholism, wife beating, the harsh treatment of unwed mothers, and how these problems could be solved. Sarubai described the women's involvement in her village: "We divided the village into four sections, with one *mahila vikas mandal* member responsible for the health of her section. She ensures that all children are immunized and all the pregnant women receive prenatal care. We also trained three women to be in charge of deliveries when I am not around. Every year we repeat the house-to-house survey. It helps us plan our programs and understand what to emphasize."

The *mahila vikas mandals* started "keep the village clean" drives. They got rid of allergenic weeds, constructed drainage pits, and encouraged the use of toilets. They helped the village health worker follow up on patients with tuberculosis and leprosy and assisted in the rehabilitation of these patients and their families. In many villages, the farmers' clubs turned over most of the health responsibilities to the *mandals*, while the men concentrated on projects, such as planting thousands of trees and building small dams to reduce the frequency of drought, thus reducing the need for them to leave the villages to find work. Most village women had never attended school, been involved in decision-making, or had control of their time. The *mahila vikas mandals* became their schools and gave them a structure in which to organize. By 1978, thirty-one villages had associations. Caste differences became much less important, and women found it increasingly easy to work together.

Previously, women had feared government functionaries and avoided entering courts, police stations, or other government offices. Now they adopted strategies in their gatherings to remove these fears by practicing meeting high-level police and revenue officials, local judges, bankers, and others. With deliberate intent, they continued to interact with these people. To their surprise, they found these officials cordial and genuinely

interested in their work and welfare. Women grew confident, and that allowed them to move into new arenas.

Bank officials, accustomed to providing credit to rich businessmen or farmers, at first treated women condescendingly. The paperwork for issuing small loans to scores of women was a bother for the bankers. The government, however, had a special program extending credit at low interest rates to women and marginalized people. The women had read the rules and were sure they had met the criteria. At first the bankers refused to loan them funds, offering many excuses: the women had no collateral or property; they were illiterate; and other flimsy reasons, one after another. But the women did not give up. The women sat in the banks until the bankers made a decision either to grant the loan or to explain their refusal in writing.

The first women to obtain small loans triumphantly shared their stories with other villages. They used the loans to enhance their incomes. They bought chickens and goats for breeding. They started small businesses, buying and selling bangles, dried fish, or vegetables. Some dug wells for irrigation, bought a pump, or acquired bullocks to help in farming. One woman bought a small canopy, loudspeaker, microphone, and record player, which she rented out for weddings, elections, and the numerous festivals in the village; she repaid her loan in six months. The Dalit widow Lalanbai Kadam, whose situation opens this chapter, leased government-owned fruit trees growing by the roadside. Now she sells the fruit and makes a yearly profit of 10,000–30,000 rupees.

Access to credit made being part of the *mahila vikas mandals* popular. They were clubs that became business incubators. More than 3,000 women who had never had a hope of getting out of poverty now took out loans. Their performance attracted the attention of higher bank officials at state headquarters, who invited the women to share their experiences with bankers in other parts of the state.

Expansion

As physicians who had come in from the outside and had pledged to help, we were catalysts for development activities. Through the health center, which functioned as an organization independent of both the community and the government, we introduced ideas, supported new behaviors, and forged three-way partnerships among increasingly unified communities,

officials from many departments and levels of government, and ourselves as experts. As communities came to feel capable of standing on their own feet, we were no longer the only catalysts.

The project had begun in thirty villages, using energies we had provided. As villagers contacted their relatives and friends about the changes taking place, the program expanded to cover a region containing 250,000 people. This came about from actions people were sharing with each other. As people became more self-reliant, more than 300 volunteers went to remote villages to start new programs. Those village people, in turn, became facilitators for change in what has become a growing people's movement. Who was in control? No one person, and certainly not ourselves. This now-substantial movement was growing from the feedback loop of people's aspirations and their actions, constantly expanding and, through that, changing.

Although the program started with health care, beginning with an outside initiative from us, it expanded into other aspects of development. Through frequent seminars and meetings, government personnel joined with the poorest of the poor in providing services. Bringing in the enabling top-down environment of the government made that growth even larger. For example, in the mid-1970s, villages began cooperating with the state's forestry department in developing plant nurseries and promoting reforestation; in 1987, these villages won the highest national award for planting trees in their area of India. Growth still kept on happening. Through expanding linkages among sectors, communities joined with nongovernmental organizations and the government in watershed-management programs.

Over a period of twenty-five years, 250,000 marginalized men and women improved their own lives and those of the people around them. Infant mortality (a globally accepted indicator of overall health) fell from over 175 deaths per 1,000 live births to 18 per 1,000. Although more people now live longer, every year the rate of population growth is moving closer toward stabilization; the birth rate has declined from over 40 newborns per 1,000 people to 17 per 1,000, and it continues to move downward. Small families have become an accepted social norm, with 70% of couples using family planning. A desert area that people were abandoning is now increasingly fertile, with check dams that feed water into the soil, with

grass that can support cattle, and, most importantly, with people who are trying out one idea after another to improve their lives.[1]

Becoming a Learning Center

When we had worked in the villages of Jamkhed for twenty years, some of the VHWs came to us with the suggestion that it was time for us to go somewhere else. "We can look after ourselves now," they said. "Many other places in India have greater needs than we. You can start similar projects in other places." In 1989, we received a grant to return to Johns Hopkins University (where we had originally been trained in public health) for two years to write a book about our experiences.[2] The time seemed to have come to start over in new place. Before we left Jamkhed, we identified a new area about 200 kilometers (125 miles) away, at Bhandaradara, where, several years earlier, 60,000 tribal people had been displaced from their traditional forest lands to create space for a dam that would irrigate large sugarcane plantations. With this needy area in mind as our future work site, we turned to the task of analyzing what had happened over the two previous decades.

As we began writing our book, seated behind desks in the United States, it was hard to recall the early days at Jamkhed. Our minds kept focusing on what we were going to do next, on the big challenges ahead. After a year, Raj went back to Jamkhed to get tape recordings of our early partners talking about what had been important to them in those days of great uncertainty. On arrival, the first thing Raj learned was that the new project at Bhandaradara had already been established. Groups of VHWs had bought bus tickets to Bhandaradara with their own money, moved into village homes for a week at a time, and trained local VHWs, creating a new model of extension. Without going through our approach of slowly developing village contacts and trust through volleyball games and tube wells, they had directly translated the entire package of locally relevant interventions, based on village dialogues.

In Baltimore, as we finished writing our book, we realized that an opportunity had emerged to change our orientation from going to a region in an additive way, area by area, demonstrating a new approach, and training some people, so others could then learn and engage in the skills they were being taught. Instead of starting one more project, we could train people,

so they could start their own projects. Jamkhed could become a learning center, a SCALE Squared center. Churches and other donors provided funds for dormitories and classrooms for groups of about twenty-five students at a time. The first course started in 1994. In the initial four years, nine groups of students—180 participants from sixteen Indian states and sixteen countries—completed diploma courses.[3]

The diploma program began with three months of intensive training. Students accompanied VHWs, who explained their routine tasks and how they had learned what worked. They talked about why different villages were doing the same activities in different ways, and how procedures had evolved. (Principle One in the SEED-SCALE approach: in this instance, building on our successes.) These demonstrations prompted intensive discussions about conditions in the students' regions and countries and how Jamkhed ideas could be adapted there. Classroom sessions were divided into modules, according to group interests, and focused on both theoretical implications and practical applications. (Principle Two in SEED-SCALE: creating three-way learning partnerships.)

Our intent was to train practitioners, people who could do this work. Thus, in the final module of the diploma program, students developed their own projects, and then returned to their own job environments for six months to implement them. During this time, Jamkhed faculty visited each project at least once, to monitor progress. Finally, the students came back to Jamkhed for two weeks of intensive evaluation on what they had done. (Principle Three in SEED-SCALE: nurturing evidence-based decision-making.) During this final period, they explored the behavior changes needed in themselves, their colleagues, and their spouses at home. (Principle Four in SEED-SCALE: fostering cooperative behavior change for the new projects.)

In addition to the diploma courses, demand grew for short courses, most of them lasting one to two weeks. In the first four years after these courses began, 1,135 people, most of them from nongovernmental organizations, participated in ninety-seven such courses. Thirty-two of these were international courses, given by and for experts from eighteen countries. The remainder served Indian participants from seventeen states, including twenty-eight courses for the state of Maharashtra and four all-India courses. Now, three decades later, the number of these short courses has mounted, to approximately 500.

But we also went out into the world as trainers. In the early 1990s, the Methodist Mission Board in New York City hired Mabelle to run workshops in Latin America and Africa, describing what we had learned at Jamkhed. She then joined the UNICEF regional office in Kathmandu to run training workshops throughout Southeast Asia. Also, trainers from Pakistan, Bangladesh, and Nepal came to Jamkhed to take courses. In 1998, Mabelle returned to Jamkhed to teach full time. Since 1996, Raj has focused on transforming government officials by providing special orientation courses in community health care for candidates from India's elite government cadre, the Indian Administrative Service (IAS), conducting seven- to ten-day sessions at the IAS academy and fieldwork at Jamkhed. The Jamkhed approach to health services has now extended to other states across India.

Lessons from Jamkhed

Jamkhed's scaling up began slowly. The first ten years involved a progressive expansion of SCALE One, with a distinctly bottom-up emphasis on community empowerment. In an extremely poor and rigid social structure, village-to-village extensions of social development permeated and revolutionized their traditional culture. As people became aware of their own potential, they developed new attitudes, behaviors, and strategies to meet their own desperate needs for a better life.

Blueprint extensions of the Jamkhed model, tried by certain states in India, met with little success. But the ideas from Jamkhed entered the national program in a variety of ways. Jamkhed is certainly one of the pioneers of the community health-worker concept globally, both in having played an important role in introducing the concept at the 1978 World Conference on Primary Health Care and in training practitioners across the following decades. Some primary health centers in India and around the world have subsequently actively taken to training community health workers. Further, the findings from Jamkhed became powerful in Jamkhed's own extension, through a training process bringing together communities, officials, and experts. Jamkhed, now able to focus on the particularity of its context—operating as a SCALE Squared center for India and the world—advises officials, experts, students, and interested individuals about the elements needed to create an enabling environment for communities. Notwithstanding this influence, Jamkhed still speaks with the unassuming

voice of village people, and the quarter-million individuals active as global trainers make no pretense of having left their villages behind.

In the words of one Jamkhed woman: "People are like wick lamps—simple, inexpensive, and unattractive. But unlike expensive chandeliers (which professionals are), a wick lamp is capable of lighting another lamp, and another, and another, to cover the whole planet."

15

Addiction as a Barrier to Development

Gadchiroli, India

Abhay and Rani Bang

Communities afflicted by a collective addiction are blocked from social progress because their energies focus on supporting that addiction rather than moving forward. Addiction, as we use the term, involves more than chemical dependency. In cases of physical addiction, chemical adjustments reorient bodily functions. The process is analogous for a community addiction: collective systems are reoriented, and collective behaviors focus on satisfying the compulsion. Societal addictions range from widespread substance abuse—dependence on opium, peyote, or other chemicals—to behavioral addictions, such as an all-consuming cultural practice, value, or anything else that blocks community energy from seeking balance in life. Societal addictions are increasingly manipulated by outside economic interests. Large corporations thrust items onto communities through advertising, promoting new social norms, and, often, utilizing chemical stimulants, even seemingly innocuous chemicals such as added sugar; they make huge profits from mass obsessions.

Moving communities away from addictions is difficult. Even when a negative impact is obvious, communities can seldom break out of addiction on their own, for in many cases their local leaders in some way benefit from the dependency, thereby using the addiction to strengthen their position. But outside experts and concerned officials can create a countering awareness and stimulate community-driven change. In Gadchiroli, India, the people used group activities to overcome a community-wide barrier to social progress, a barrier where local financiers were profiting handsomely and were abetted by politicians' self-interest.

Step One: Building Capacity

When our project work in Gadchiroli began, it was the least-developed district in the Indian state of Maharashtra. Most of its inhabitants are tribal people who lived in the area millennia before the now-dominant Indian castes moved in. Eighty percent of the people live below the poverty line, literacy is only 22%, roads are poor, and health care is rudimentary. In 1986, we founded a voluntary organization, SEARCH (Society for Education, Action, and Research in Community Health), to provide community care and conduct research on the health of women and children.

We began with a misstep. Earlier research had persuaded us that sickle-cell disease was an urgent problem among the tribal people of Gadchiroli. The government had recognized our research with a special award, and the state health ministry funded a special research center in the Gadchiroli district. But the people had not participated in the collection or analysis of the information and didn't have a sense of ownership; they did not feel sickle-cell disease was a problem for them. Starting with what we experts perceived to be a problem, our initial efforts to address it went nowhere.

When we began to organize gatherings of rural women and young people to discuss common health problems, at all the meetings women described how their lives had been ruined by alcohol addiction. They claimed it was nearly universal among husbands, fathers, brothers, and sons. Men got drunk, didn't go to work, failed to support their families, beat their wives, quarreled, and even killed each other. Some women wept as they told their stories. Young people angrily charged that their male elders were failing in their responsibility to care for their children. Adult men who attended the meetings did not disagree. (In other words, we had a problem where a behavior had to change—one of the four SEED-SCALE principles.) But although community conviction against this heavy drinking was strong, it had not been strong enough to lead to action. The first step was to help people understand how alcohol operated in their lives, and to gather objective data that outlined the scope of the problem. (To make our decisions we needed not opinions, but evidence, another of the four SEED-SCALE principles.)

- At a two-day workshop, 150 men and women from thirty villages took part in focus-group discussions to review their experiences over the

past forty years. There was general agreement that alcohol consumption, from both licensed and illegal sources, had greatly increased.
- A group of teachers collected data on annual liquor sales from licensed shops and on the regulations governing the shops.
- In evening meetings, villagers estimated the amount of money they spent on alcohol.
- In 104 villages, forty-three village health workers conducted a survey on the number of people drinking, the frequency of their drinking, expenditures on liquor, common symptoms, and deaths attributed to alcoholism.
- Working with the community, we obtained official documents relating to government policy and guidelines on the sale and consumption of liquor.

The surveys showed that about 100,000 males in the district drank frequently, around 8,000 seemed to be addicted, and a surprisingly high number died of alcohol-related consequences. In addition, people blamed a high intake of liquor for chronic abdominal pain, loss of appetite, vomiting (including vomiting blood), foot and abdominal swelling, jaundice, progressive weakness, impotence, accidents, injuries, loss of income, poor employer relations, family disruptions, and even mental derangement. In an average village, people spent about 200,000 rupees on alcohol each year.

Notwithstanding a commitment in India's constitution to prohibit both the sale and consumption of alcohol, as well as a specific recommendation by the national government that alcohol not be sold in tribal areas, the state had licensed fifty-seven shops in the district; in addition, it had issued permits to 2,000 individuals to purchase up to twelve bottles at a time. In effect, these permit holders acted as subagents for selling liquor in the villages. Annual sales in the district amounted to 200 million rupees (over US$5 million), while the government's total annual support for all district development programs was 140 million rupees.

Step Two: Choosing a Direction

Applying another of the SEED-SCALE principles, a three-way partnership of people (bottom-up community members, top-down government servants, and ourselves as outside-in experts) conducted this research. Teams of social activists, political leaders, ordinary citizens, government officials,

and experts from SEARCH took the results back to the people, visiting hundreds of villages throughout the region to give each community an objective self-portrait. In meetings, the teams discussed both the problem and possible solutions. During these discussions, people often recalled a tribal folktale as a helpful way to objectify the problem, instead of blaming themselves:

> In ancient times, the tribal people were all healthy and happy, for they lived deep in the forests—it was the time before outsiders came to cut those forests. One day the devil mixed the blood of a parrot, a jackal, a tiger, and a pig and offered it to the people, a wonderful drink he called "liquor." Anybody who drank it became first talkative like a parrot, then cunning and a cheat like a jackal, then loud and aggressive like a tiger, and eventually a human pig rolling in the gutter.

As awareness grew, boys from two especially well-organized and highly committed villages pressed their communities to start acting. They cooperated with village health workers to organize a ban on liquor. Stores selling alcohol were closed. Bottles were broken. The streets were patrolled at night to prevent alcohol from being brought in, and drunks were fined. Such actions worked in these villages, but it was not a strategy that could readily be extended to others.

After further discussions, a collective movement started to emerge. Groups of women and young people in 349 villages passed resolutions to ban all liquor. Marches were organized and subdistrict-level conferences were convened at four places. In November 1988, more than 3,000 delegates from more than 400 villages attended a district-level conference against alcohol. Even very poor people gave money to defray the costs of the conference. Present at the meeting were the district magistrate, the police chief, and other officials who wanted to be seen as standing up for the public interest. People were blunt as they presented their data and described how officials provided cover for the illicit sales.

From this meeting and from smaller discussions, a consensus emerged that actions must strike at two levels: through village interdictions and government policies. As people felt empowered to act for their own protection, tasks were assigned to every village. SEARCH members and other experts, supported by the newly strengthened community groups, began

collaborating with these empowered villages, helping to present their demands at higher government levels.

Step Three: Taking Action

A district *darumukti sangthana* (organization for liberation from liquor) was formed, and more resolutions were passed. Two hundred villages enacted bans on the sale and consumption of alcohol. Women in one village locked up drunken men overnight and publicly disgraced them in the morning. This strategy was widely publicized. A deputation visited a village where the ban was being defied and warned that a boycott would be imposed in the absence of compliance. A day later the village fell into line.

Alcohol trade at the village level was stopped, but sales in towns continued in shops licensed by the government. These shops were invariably owned by local politicians, thus receiving official patronage and protection. The state asserted that its substantial revenues from the sale of alcohol were necessary for welfare programs. The people retorted that they could take better care of themselves and their families if they retained more of their money, and that the government had no right to sell addiction. Under such public pressure, three members of the state legislative assembly elected from Gadchiroli submitted a memorandum to the chief minister of the state of Maharashtra demanding the closure of licensed shops and the transfer of authority over the use of alcohol to local villages. The chief minister agreed, but no action followed.

The people decided they could no longer depend on the government to control alcohol. On October 2, 1992, the anniversary of the birth of Mahatma Gandhi, a People's Liberation from Alcohol movement was announced in the presence of 10,000 delegates assembled from more than 600 villages. Again, every leader there—including a member of the national parliament and a minister in the state cabinet—publicly declared their support for the people's resolution. The conference authorized villages throughout the district to assume responsibility for controlling alcohol. Throughout the discussions, the speakers returned again and again to the data they had themselves gathered and fully memorized. They also interspersed this data with personal stories of problems in their communities. The most common theme was that this one problem of addiction was the most important barrier to all other development.

The October 2 conference was a high point of participatory democracy in the nonviolent tradition of Gandhi. It became a powerful symbol of a shift in the locus of authority from the government to a partnership of people, experts, and officials bold enough to stick their necks out (though they sometimes later pulled them back in). The bureaucrats stalled, but the coalition did not go away. In 1996, the state government finally banned the sale of alcohol in Gadchiroli, closed all fifty-seven liquor shops, and canceled the individual permits.

Two follow-up surveys over the next two years showed that alcohol consumption was 60% less than it had been before the ban. A political solution, however, cannot cure a social problem by itself; in fact, burying an addiction beneath laws may sometimes make it more pernicious by allowing denial of the problem. Long-term education and continuing organization are essential to truly reduce the problem and keep it from returning. In the Gadchiroli case, however, making alcoholism illegal did have the immediate positive benefit of enabling families to save money for their own needs. Social pressures and changed norms also made drinking a much more private activity, and brawls and beatings dramatically decreased.

The Gadchiroli story was told all over the state. A nucleus of activists from the district lobbied the state assembly and gained passage of legislation that guaranteed the closure of liquor shops in any village where 51% of the women voters passed a resolution to do so. Yet the task is far from over. In Gadchiroli, the challenges will be to sustain community participation, to keep updating the data, and to expand real and lasting behavioral change throughout the district.

Lessons from Gadchiroli

To combat Gadchiroli's collective addiction required a real partnership among local people, officials, and experts. On their own, citizens could not have gathered data systematically, sustained the pressure against entrenched interests, and achieved the legislative results. The community approach to gathering data, identifying the nature and scope of the problem, and finding solutions was crucial to its success. Participatory research created a common focus that transcended earlier differences and produced a large social force with irresistible leverage in pressing for legal changes. With removal of this major barrier to development, other activities could begin—in health, income generation, food security, and the like.

Customary medical or epidemiological research done by professionals would not have been nearly as effective, either politically or socially. Research should not be more sophisticated than local needs require, and its implementation should not require skills that local people don't have. If community-based action addresses a need that the people themselves have identified as a priority, they will join forces with well-intended outsiders who have come to help. Only then will the resulting partnerships have the potential to form a base for just and sustainable development.

16

The Green Bay Packers

Community-Owned Energy

Paz Abella Magat

> The association shall be a community project intended to promote community welfare and that its purposes shall be exclusively charitable.
>
> Green Bay Packers By-Laws, note 15, at Article I

The average sports fan, reading this, would probably be shocked to realize that the bylaws of a team in the most lucrative sports league in the United States mandates "that its purposes shall be exclusively charitable." Professional sports, in the minds of most around the world, are about making money. Team owners make money—a lot of it. The players make money—at vastly different levels, depending on their ability and marketability. Broadcasting networks make money. Sponsors of professional sports clearly believe that they are making money, thus pouring chunks of money into billboards, airtime for commercials, and jerseys with their names on them.

The Green Bay Packers are one of the most iconic teams in American football, a team that has won thirteen championships—more than any other American professional football team—and a team that comes from the smallest city of any professional football team. So how is this team a charity? How does it promote community welfare? The answer is that instead of making money, the purpose of this team is winning for the community. So, by building on successes, community grew first across the city of Green Bay; then the state of Wisconsin; and, increasingly, worldwide.

Green Bay is the third-largest city in Wisconsin, with a metropolitan-area population of approximately 306,000. It is known as an industrial city of blue-collar workers who endure a consistently brutal winter (sixty-eight

days a year, on average, with the high temperature at or below freezing). Its population is more than 77.9% white, and the median age is 33.7 years old. It is in this city that the third-oldest American football team—the Green Bay Packers—keeps on winning, and the community that owns it thrives.

Since its inception in 1920, the National Football League (NFL) has grown to become the most lucrative sports league in the United States, operating on an annually increasing, multibillion-dollar budget. *Bloomberg Businessweek* estimates that the NFL's annual revenue is about US$9.5 billion per year.[1] Of the thirty-two teams in the NFL, the Green Bay Packers have won the most championships yet rank twelfth in value—a combination not usually seen in the four major professional sports in the United States. What further sets this team apart is that it is the only team in the NFL (and in major professional sports in America) that is owned by shareholders, not by a private owner or an ownership group.

When the team's original owner, Early "Curly" Lambeau, realized that the team would soon go bankrupt, he decided to sell public stock in the team in order to save it. Green Bay was a small town, with its team playing against those from large, rich cities in America. To this day, the stock pays no dividends, benefits from no earnings, and cannot be traded. Shareholders do not even receive free tickets to games. In addition, no one may own more than 200 shares. And yet, when stock is made available for sale, it is snatched up immediately. The *Wall Street Journal* noted that in 2012, during the first sale of shares in fifteen years, more than 250,000 shares were sold in just one month. The shares were so popular that the sale was extended and the offering expanded by an additional 30,000 shares.[2] In return for their hard-earned money, stockholders merely receive a certificate, are permitted to attend the annual shareholders' meeting, and get access to shareholders-only merchandise sales.

The significance of this ownership model is illustrated in the many ways it benefits the team and its investors, serving as a base for team viability and community engagement. These owners very much want their team to win—and perhaps by not being encumbered with profit seeking, they want even more for their team to win—with the result that the foundation thus created is both a stronger community (the city of Green Bay and the state of Wisconsin) and support for the team, where the players are stronger because of the community. This community connection with

sports performance can be demonstrated using the five criteria of SEED-SCALE.

1. *Inclusiveness*. Despite being one of the most successful NFL teams, and with such a high demand for tickets (with a waiting list of 81,000 people for season tickets), prices for Packers games are affordable. Fans of the New England Patriots fork over the most (US$122) for a nonpremium ticket to a football game. Of the thirty-two teams in the NFL, the Packers rank fourteenth in ticket price; at US$85.61, tickets to their games are 20% cheaper than those for the Chicago Bears, which had a poorer win/loss record. By keeping ticket prices affordable, Packers fans, many of whom are the team's owners, are able to attend games and not be excluded from their own investment, further reinforcing the commitment of its fan base.

2. *Sustainability*. The NFL and its teams are often subject to strikes by the players' union; to television bargaining agreements that block the broadcasting of certain games; and, most recently, to a strike by the referees' association. When these events take place, usually games are not played or seasons are delayed, resulting in a huge loss in revenue for both the team owners and the league itself. The Packers' bottom line is not to generate more and more revenue for the pockets of its owners, but to engage with the community. Lockouts and broadcasting rights are not such an extreme problem for this organization.

In a panoramic view of the average NFL stadium, one sees enormous television screens, perhaps some recognition of past players, and advertisement upon advertisement for the team's sponsors. In that same vista at Lambeau field, just a few sponsor signs appear. Moreover, naming rights for NFL stadiums have taken on a life of their own. In 2014, the San Francisco 49ers sold the rights to name their stadium to a sponsor (Levi's) who will pay the team US$220 million over eleven years. Meanwhile, back in Green Bay, Lambeau Field has retained the name of its original owner since 1965, one of four NFL teams without a stadium sponsorship. The Packers' business model reduces the need to depend on sponsorship for revenue. Perhaps this will change—or perhaps it will not. Following a referendum approving the sale of naming rights, the Packers organization came to an agreement with the city of Green Bay: a sale of the stadium name could take place if at least US$100 million would be paid for it. That was in 2000. A decade and a half later, no buyer has been

found. When approaching Lambeau Field, the gates to enter the stadium have sponsors, but fifty years after the stadium was named for Curly Lambeau, it still retains the name of the man who understood connection to the community.

3. *Iteration*. When a professional sports team wants to build a new stadium, usually new land must be acquired, and city bonds and other financial support must be raised. Often, the city (using taxpayer money) invests heavily, without guaranteed returns. In many cases, such development further gentrifies the area, driving away long-time inhabitants. Often a team has moved to another city in order for its owners to build a new stadium, as bigger stadiums generate additional revenue. These new stadiums require public funds (on average, US$6 billion per stadium in recent years), without much tangible benefit to the public.[3] The people in a distant city pay for the acquisition of a sports team from its previous location—but the added revenue in the team's new locale goes to the team owner.

In the case of the Green Bay Packers, community ownership means that this team cannot be sold or moved easily, because no sole owner can make those decisions. In 2013, more than 250,000 shares were sold to expand and renovate team's stadium, so the community base expanded. Selling those shares provided funds for necessary stadium repairs; the expansion also created additional seating for fans, thus generating an estimated US$5 million in ticket sales. With a season-ticketholder waiting list of 81,000, the expansion guaranteed additional revenue in perpetuity. The team got the monies it needed, and its support community expanded further.

4. *Holism*. The thirty-one teams in the NFL that are owned by either one person or an ownership group allow little to no general access to the financial realities of the team beyond player salaries, which are published annually. As a publically traded organization, the Green Bay Packers' books are open to the public, their fans, and their shareholders. This creates a culture of accountability by team management and fosters further belief that the US$250 per share paid by the owners means that what they are buying into is a commodity they trust. At a time when some owners are claiming they are losing revenue (but with their books not publically open to support this claim), what they are really saying is that their team is less lucrative. Despite a decrease in overall revenue for the

Green Bay Packers in the last few years, the team's profit is estimated to have still hit US$25.6 million.[4] This transparency is a continuing feedback loop to its community owners, who therefore support the multitude of facets that make the community-ownership model work.

5. *Interdependence*. The Packers' constitution deliberately directs its revenues back to the community. If the team is ever sold, the constitution dictates that the all of the proceeds must go to a foundation, for distribution to local charities. At the operational level, stadium concession stands (which doubled in number during the stadium's renovation) are staffed by volunteers, who sell the lowest priced beer of all the NFL stadiums. Proceeds from the concessions (approximately US$750,000 in 2009) are mostly given to local charities. Published estimates put the city's employment numbers, due to the Packers' impact, at over 2,000 jobs, further connecting the team to the town.

As a collective result, the Packers community has showed creativity in solving the issues of continued viability. Recently, the state of Wisconsin invested US$169 million in public funds, and the Packers organization invested US$136 million (raised partially by selling seat licenses at a reasonable price), to construct a facility near Lambeau Field, consisting of retail stores, restaurants, a wedding venue, and the Packers Hall of Fame. It was built in two years, and this addition subsequently boosted both the team's revenues and the local economy. This mutually beneficial solution is a far cry from what many NFL teams do for additional revenue. The Washington Redskins banned tailgating, so fans would have to buy alcohol inside the stadium (at higher prices), and they charge a facility parking fee, even if fans use public transportation to travel to the games. The Packers' model may not make equal amounts money, but it increases community investment with returns that loop back to the community.

Perhaps one of the most creative uses of community energy is the Green Bay Packers' tradition of issuing a call for volunteers to help shovel snow out of the stadium in preparation for games. When a call to arms is issued, there is no shortage of shovels at the doors of the stadium, the wielders happy to chip in so a game can take place. In this, the owners take to the field and, in essence, work for themselves, furthering their investment.

These team/community examples illustrate a feedback loop that incentivizes the team to perform and maintains and grows its fan base nation-

ally, and even worldwide. This base brings in investors who keep buying shares, even if these have no financial benefit. A 2010 economic-impact study of the stadium's redevelopment revealed that the construction resulted in businesses also getting equal or increased revenue. As a result, employment in Green Bay remained steady or increased.[5] All of these factors provide incentives for investors and fans, which help ensure that the team stays in Green Bay—and what the team is playing for is no longer just the city of Green Bay, but a growing national and international community, as well.

Clearly there is an economic impact created by the community-ownership model. More impressive, though less quantifiable, is the impact this model has on the tapestry of the community itself. The interdependency is one of identity: they want *their* team to play on. Beyond their fiscal significance, sports play an increasing role in the social fabric of communities. Admittedly, it is not always a positive one—intense fandom sometimes manifests itself in violence, such as the multiple stabbings in the Denver Broncos' stadium parking lot when fans got into an altercation. The Philadelphia Eagles' old stadium had an onsite jail and judge to process arrests on game days. On another scale of values, the professionalization of football is actually contributing to the demise of its own players. In 2013 alone, the league reported 228 diagnosed cases of concussions among its players.[6] In recent years, studies of traumatic brain injuries have linked them to clinical depression, substance abuse, mental illness, and suicide.

But by and large, the biggest impact professional sports have on a community is that the success of a team creates an identity for its fans and its home city. Unfortunately, in the case of the thirty-one other teams in the NFL, this creates a certain fragility between teams (and their owners) and their fan bases: the identity of a community is dependent on the profitability of a team. Owners, in order to pursue additional profits, will make decisions about the team at the expense of the community. The financial implications are very large. The United States' sports economy is worth billions—from youth sport leagues, to television broadcast rights, to the sale of equipment and team paraphernalia—but this revenue primarily benefits team owners. As Dave Zirin of the *New Yorker* puts it, "In the United States, we socialize the debt of sports and privatize the profits."

By contrast, in Wisconsin the identity of the city is intertwined with the success of the Green Bay Packers. It is by far the smallest metropolitan

area in the United States to host a major professional sports franchise, but it has one of the largest and most loyal fan bases, coming from the city, the rest of the state, and beyond. A 2014 study by Nielsen Scarborough ranks Green Bay atop all major categories in attendance at games, area fan percentages, and other statistics, leading *Forbes* magazine to name Packers fans the "Best Fans in the NFL."[7] To put this into perspective, the city of Los Angeles, California, the second-largest city in the United States, did not have an NFL team for over twenty years, prior to the 2016 season.

The Green Bay Packers' model illustrates a core premise of SEED-SCALE, where social benefits outweigh economic ones, thus enriching the city (and its national community) and, in the long term, thereby increasing the team's worth (in ways more important than money). This valuation was accomplished by creating an enabling environment for the team's shareholders and fans, expanding its vision and value beyond the traditional NFL model, and remaining transparent and accountable to the community that supports it.

The Packers' shareholders elect a board of directors as well as an executive committee. These groups are charged with representing the organization at league meetings and making the business decisions for the team. Decisions about the actual game of football the Packers play are made by the general manager, based on what he believes makes the team competitive. This has allowed the Packers to experiment and gamble on player acquisitions that have added championships to their list of accomplishments and hardware to their trophy case. They play for football, not for profits; because of that, the Packers win—and that's what their fans (shareholders) want.

The significance of a team moving away from a city cannot be understated. It is not only a shock to fans—challenging their allegiance—but it also carries economic consequences for that city. A good example of how the loss of a city's sports team is detrimental to that city occurred when the then Cleveland Browns were moved to Baltimore, Maryland, for the 1996 season. The team owner, Art Modell, relied so heavily on the revenue generated by the Cleveland stadium's premium seating and advertisements that when the baseball team sharing the stadium moved to a different facility, Modell lost US$21 million in two years.[8] To recoup, he got the local government to include a line in the next election that would have the taxpayers provide US$175 million to refurbish the stadium. Then, before the

election, Modell announced that he would move the team to Baltimore, since he believed that city would fund building a new football stadium. The ballot measure in Cleveland passed, with voters scrambling to keep their team. But Modell still moved the Browns, despite the new money in Cleveland, lawsuits, an investigation by the US Congress, and sponsors withdrawing their support, leaving the stadium without advertising in the final weeks of the season. In the legal maneuvers that followed, the city of Cleveland had to wait three years before attempting to start another NFL football team.

This episode spurred a rash of football stadiums being built around the country, as owners used the threat of moving their teams to get support for construction. In a short two years (1995–1997), four NFL teams moved to new cities. The Cleveland Browns case became the blueprint for owners across professional sports leagues in the United States to leverage financial strategies and fan loyalty for their personal benefit. Against that momentum, in 2014 a rarity took place in the wake of the death of the owner of the Buffalo Bills. In a commitment to this city, the owners of the Buffalo Sabres (a team in the National Hockey League) purchased the football team for a reported US$1.4 billion.[9] What can be asked, however, is if there had not been a group from the Buffalo area wealthy enough to purchase the Bills, where would this football team have ended up?

Money for individuals versus the currency of human energy in a community—this is the question, and the answer is not either/or, but both. The problem is that too often the answer is only money. With over 350,000 shareholders, the Green Bay Packers' model has put the NFL in the unique position of allowing a team to be tied to a city with little chance of that team being sold in order to make it increasingly financially profitable elsewhere. Community ownership brings in a different type of community profit: shared human energy. Community ownership may also be a reason for the team's successes, as proven by the Packers having the best history of winning in American football.

Realizing this, back in 1960 the rest of the NFL came to understand that this community-owned team in Green Bay threatened the league's structure. They saw that if a community owned a team, it was nearly impossible for that team to be sold or transferred, greatly devaluing the opportunity for financial gain to the typical kinds of owners. As a result, in 1960 the NFL banned any other team in the league from becoming

community owned. The other major sports leagues—baseball, basketball, and hockey—promptly followed. In the words of Wisconsin's former deputy attorney general, Ed Garvey, who founded the national football players' union, "There will never be another Green Bay if the league has anything to do with it."[10]

Interviews with Packers fans spanning several generations have one thing in common, and it is not that loyalty to the team came because they were from Wisconsin,[11] or were owners, or inherited their fandom from siblings or parents. The commonality comes from their belief that the Green Bay Packers' organization, from the groundskeepers to the general manager and everyone in between, reflects Wisconsin, and that the team's shareholders, wherever they might live, increasingly view themselves as a Packers community. Their pride stems from feeling that the head coach seems like someone who lives next door, the players avoid showboating and calling attention to themselves, and all who are involved seem to be salt-of-the-earth types. In other words, the way the team is operated, and those who represent it, truly show that the people look out for one another and feel they are part of a stable community of equals. The model of the Green Bay Packers is special in the way its culture and structure promote a secure and sustainable community.

IV LARGE-SCALE APPLICATIONS

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17

Scaling Up Tobacco Control

Creating Authority by International Convention

Heather L. Wipfli and Jonathan M. Samet

January 2014 marked fifty years since the US Surgeon General first concluded that smoking cigarettes caused cancer in men. The initial studies on lung cancer and cigarette smoking were published in the 1930s and 1940s, followed by a wave of case-control and then cohort studies, all showing convincing evidence that smoking caused lung cancer and other diseases. The 1964 US Surgeon General's report and a 1962 report of the Royal College of Physicians provided authoritative conclusions that were sufficient to warrant action. The 1964 report characterized the problem of smoking and health as follows: "Cigarette smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action."[1] Over the subsequent half century, an enormous body of scientific research documented the causal associations of active and passive smoking. Active smoking is addictive and leads to disease in nearly every organ and system in the human body. Passive (i.e., involuntary) smoking links to an increased risk for major diseases in infants, children, and adults; moreover, secondhand smoke was found to pose a risk at any level of exposure. These findings on the deadly consequences of smoking have been the foundation for individual-, community-, national-, and international-level actions to control and end tobacco use.

Despite the mounting, irrefutable science, through the 1960s and 1970s there was a worldwide increase in smoking. That momentum has been slowed—and hopefully arrested—by a global tobacco-control movement and, specifically, by the World Health Organization's Framework Convention on Tobacco Control (FCTC).[2] FCTC is a global treaty now ratified by

most nations. It commits the involved parties to a national tobacco-control agenda and puts in place global measures to deal with such issues as illicit trade in tobacco and tobacco products. The FCTC was a needed response at a global level to a multinational industry that uses vast resources to sustain and enlarge its markets.

Actions in tobacco control have been based on the emerging scientific evidence regarding the adverse consequences of tobacco smoking and what works to control its use. One example is the establishment of clean-indoor-air legislation. From the mid-1980s, and particularly with the impetus of the findings of the 1986 report of the US Surgeon General on secondhand smoke, municipalities in America were the first to implement ordinances banning smoking in workplaces and public places, despite vigorous opposition organized by the tobacco industry.[3] State regulations followed this local-level action.[4] The most recent step in this evolution has been action at a global scale, accomplished primarily through the World Health Organization's first public health treaty, the FCTC.

Now, more than a decade after the FCTC came into force, tobacco control is at a critical juncture. While smoking is declining steadily in most high-income and some middle-income countries, its prevalence has barely dropped in many low- and middle-income countries and is rising in some. The number of smoking-attributable deaths is estimated to increase from the current figure of 6 million deaths to over 8 million by 2030.[5] The failure to end the tobacco epidemic reflects the dynamics of tobacco control and, particularly, the ongoing efforts of the tobacco industry to maintain and expand its markets through any possible means.

The Multifactorial Tobacco Epidemic

As an understanding of the tobacco epidemic advanced, the multiple levels of its determinants became clear (figure 17.1). These range from the cellular (including genes that affect an individual's propensity for addiction) to the global: a person's family, peers, and neighborhood; laws and taxation at state and national levels; and global actors. At the global level, the tobacco epidemic is now largely driven by a small number of multinational corporations (Philip Morris International, British-American Tobacco, Japan Tobacco International, and Imperial Tobacco/Altadis), along with China National Tobacco (a state monopoly). This industry designs cigarettes to enhance nicotine addiction.[6] Additionally, marketing is

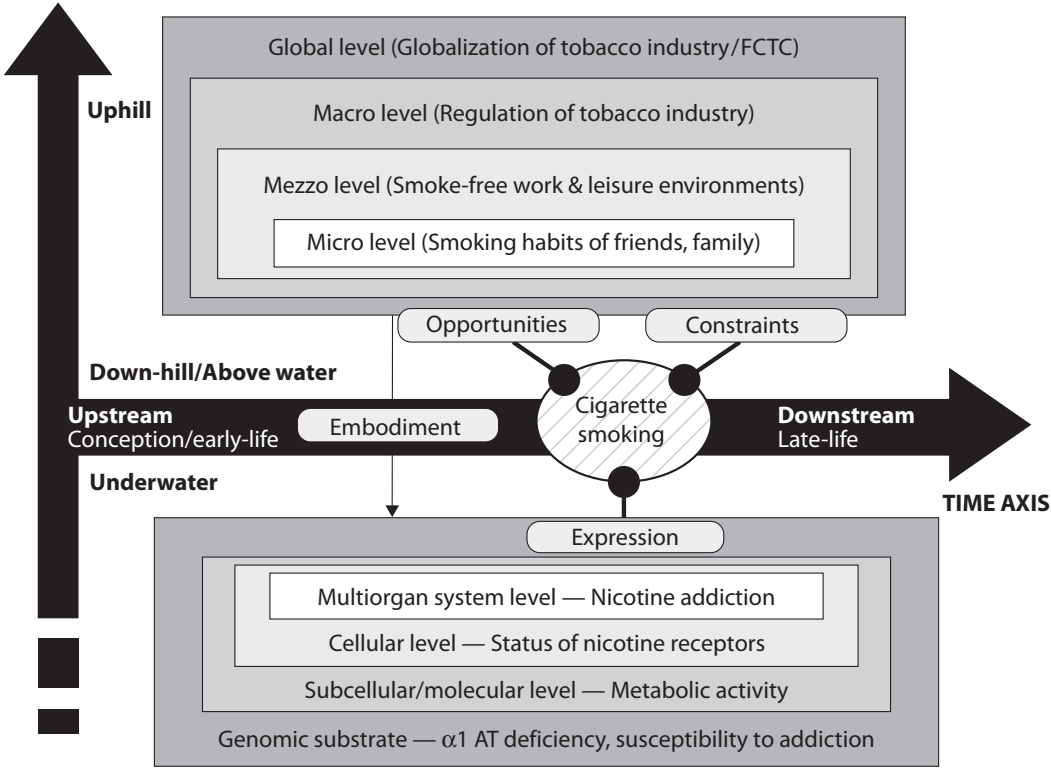

Figure 17.1. The axis of nested hierarchies for tobacco control across a life-course. ***Adapted with permission from Glass and McAtee, 2006.***

targeted to particular population groups. For example, RJ Reynolds previously targeted children through its Joe Camel campaign, reaching one of the most vulnerable populations—nonaddicted youth—until it was forced to abandon that strategy by the US Federal Trade Commission.

This figure adapts Glass and McAtee's structured life-course model, capturing health determinants related to tobacco smoking.[7] The model's lowest level shows that genetic factors figure in smokers' susceptibility to addiction and risk for disease. Intermediate tiers are the roles of family and peers in one's initiation to smoking; these are well established and relevant globally. The broader neighborhood, municipal, state, and national levels create both positive and negative pressures for tobacco use. The balance between and across these levels sets the cultural norm.

In recent decades, the global level has become ever more relevant as the tobacco industry has consolidated into the small number of multinational companies who use trade agreements, direct foreign investments, and mass media to market their products and evade domestic tobacco-control regulations. In response, the FCTC is being implemented by almost all of the world's nations, with a few notable exceptions at present, including the United States, Indonesia, and Argentina.

Glass and McAtee's life-course perspective is also relevant to tobacco control and fits well with our understanding of how smoking damages one's health and causes addiction. The adverse consequences of smoking begin immediately, and they lead to an ever-increasing risk of smoking-caused diseases as a person ages.[8] For women who smoke, fertility is reduced; increasingly strong evidence suggests that smoking during pregnancy increases the risk for congenital abnormalities and may introduce changes in the epigenome (chemical modifications in non-coding DNA) that have lasting consequences.[9] The developing brain of the fetus may also be affected by in utero nicotine exposure, and adolescence appears to be an age at which nicotine exposure may have lasting neuropsychological consequences.[10] The health consequences of involuntary smoking also begin during gestation and extend across a person's lifespan.

The Global Tobacco Epidemic

The conventional epidemiological triangle of agent, vector, and host is helpful to highlight the role of multinational corporations and the need for global-level strategies (figure 17.2). This model, used conventionally for infectious disease (for example, with malaria, its factors consist of mosquitoes, people, a wet environment, and no mosquito nets), here shows cigarettes as the agent, smokers as the hosts, and the tobacco industry as the vector, with the environment giving it structure and abetting its multiple components. Notably, the tobacco industry is an adaptive vector that changes its strategies dynamically in order to target its markets effectively, advance profits, and counter efforts at tobacco control. The environment is defined by the extent of tobacco-control policies and societal norms concerning tobacco use (for example, exposure to advertising, the prevalence of peer smoking, and smoke-free workplaces). This is the context of geography, socioeconomic factors, and race that the tobacco industry continually manipulates through targeted marketing and lobbying. Here the SEED-

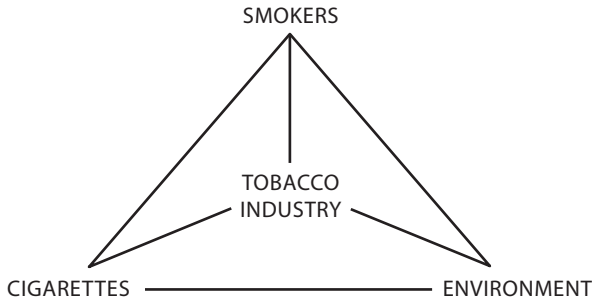

Figure 17.2. The epidemiological triangle of cigarette smoking, with cigarettes as the agent, smokers as the host, and the tobacco industry as the vector, along with the environment that sustains this interaction

SCALE three-way partnership is inverted: the bottom-up is the smoker; the outside-in, the industry; and the top-down, the environment of policies, financing, and biological vulnerability to addiction.

For much of the twentieth century, the main vector—the large and increasingly multinational tobacco companies—focused on people in high-income nations. But beginning in the 1980s, the tobacco industry began to expand its operations into low- and middle-income countries, where there were seemingly limitless new hosts in environments that were not tobacco unfriendly. As a result, the global epidemic grew rapidly and required a coordinated and effective public-health response at the global level.

Negotiation and Implementation of the FCTC

As the industry's global ambitions became clear and the growing pandemic emerged, a group of individuals and organizations challenged its expansion, using communication technologies and virtual networks to spread information, coordinate activities, and elicit responses from local, national, and international authorities. This included the first-ever negotiation of a binding international law under the auspices of WHO: the FCTC.

As implied by figure 17.1, the FCTC is not a singular international effort to develop a new instrument in global health governance. Instead, as a global mobilization, the FCTC transcends the multiple levels of tobacco control. The FCTC builds from hundreds of examples where a new international legal norm was understood, negotiated, and translated into domestic

legislation, leading ultimately to community and individual behavior changes. A global partnership was created, founded on evidence-based policy, focused on behavior change, and built from one success to the next.

The Role of Evidence-Based Decision-Making

In international law, the framework convention / protocol approach is typically used when there is no consensus to take strong substantive measures, scientific understanding is evolving, and the problem being addressed is changing. While basic scientific evidence about the harmful effects of tobacco was well established long before the FCTC process began in 1998, the global tobacco-control community nonetheless adopted the framework convention as the appropriate means to approach the problem.

A key factor was the solid scientific consensus for the recommended actions. This evidence ranged from basic biological research to economic evaluations of large-scale policy interventions. In the lead-up to the FCTC negotiations, a number of evidence-based reports were released, the most notable being the World Bank's report, entitled "Curbing the Epidemic: The Economics of Tobacco Control."[11] This supported demand-reduction strategies: taxation, advertising bans, health warnings, and smoking bans. Throughout the FCTC process, the tobacco-control community was united around the policy implications of the evidence. For example, scientific consensus supporting tobacco-control approaches provided key ammunition to lower-income countries and their nongovernmental allies, who were fighting for binding commitments in the treaty against the interests of the high-income countries that were home to the large transnational companies.

As the FCTC implementation process has progressed, new data-collection tools have been developed. These tools have included the Global Adult Tobacco Survey, the Global Youth Tobacco Survey, the International Tobacco Control Project, and the Global Tobacco Control Report.[12] In addition, the treaty-mandated reports for overseeing the treaty provide an opportunity to evaluate national progress in FCTC implementation.

State and Non-state Leadership and Partnerships

Leadership at all levels—within intergovernmental organizations, governments, and civil society—was indispensable throughout the FCTC process. This started with long-standing members of the global tobacco-

control community (mainly medical doctors and public health professionals), who framed the issue in a way that allowed its international institutionalization. The FCTC, for instance, was first presented as a civil-society resolution at the 1994 World Conference on Tobacco and Health. The evolution of the treaty from a civil-society-supported notion in 1994, largely considered implausible by WHO's legal leadership, to an official WHO strategy four years later, reflects the effective partnerships by the tobacco-control community. This included lobbying national delegates to WHO's Executive Board and the World Health Assembly, as well as individual members of the tobacco-control community who were taking leadership positions at the top echelons of WHO. As negotiations began, two global networks of nongovernmental organizations coordinated FCTC lobbying efforts worldwide: the Framework Convention Alliance (FCA), composed of more than 200 organizations in 93 countries, and the Network for Accountability of Tobacco Transnationals (NATT), made up of more than 75 groups in 50 countries. They focused on capacity building, technical assistance, and shaming. Their impact has been acknowledged by supporters and detractors and is formally recognized in the final treaty text.

While much has been written about the role and influence of transnational advocacy networks on issue creation, agenda setting, and global policy formation, much less attention has been paid to how such networks extend their influence into domestic policy spheres. Access by national tobacco-control advocates to the transnational tobacco-control network was strengthened during the FCTC process. The technical assistance these advocates received, as well as the final treaty instrument, have bolstered their domestic influence and solidified their leadership. Additionally, international financing and technical assistance have been pivotal at the national level.

The leadership of former New York City Mayor Michael Bloomberg has driven much of the financing and technical assistance. Bloomberg had become well known for his support for public health in general (including an endowment to the Johns Hopkins School of Public Health, now known as the Johns Hopkins Bloomberg School of Public Health), and for his support for tobacco control in particular. As mayor of New York City, he oversaw the passage and enforcement of the city's complete smoking ban, which he has claimed was his greatest achievement in office. In addition, tobacco taxes were raised, hard-hitting public education campaigns launched,

tobacco-cessation support provided, and smoking rates rigorously monitored. The city's tobacco-control program reduced the prevalence of smoking in adults from 21.6% in 2002 to 16.9% in 2007.[13] Teen smoking decreased from 17.6% in 2001 to 8.5% in 2007, a level nearly two-thirds lower than the US national average at the time.

Building on this legacy of tobacco control, in 2006 Bloomberg invested significant amounts of his personal wealth in the global fight. The Bloomberg Initiative to Reduce Tobacco Use was formally launched in early 2007, with an initial commitment of US$125 million. The initiative was first led by Dr. Thomas Frieden, then New York City's health commissioner (and future director of the US Centers for Disease Control), and administered through five partner institutions: the Campaign for Tobacco-Free Kids, the US Centers for Disease Control and Prevention Foundation, the Johns Hopkins Bloomberg School of Health, the World Lung Foundation, and WHO.[14] In 2008, Bill Gates strayed from his adherence to global health issues related to vaccines and maternal and child health to join in financing the initiative's work, bringing its overall funding to more than US$500 million.[15] In 2012, Bloomberg increased his investment in the initiative, committing an additional US$220 million over four years, bringing his contributions to more than US$600 million.[16]

The initiative targeted heavily populated, low- and middle-income countries with high smoking rates, particularly China, India, Indonesia, Russia, and Bangladesh. A key aspect of the program was its competitive grants program, which, in its first five years, awarded more than 125 grants in thirty-six countries. The initiative also sponsored training programs, journalism workshops, in-country development of mass-media educational campaigns, and capacity building. The Global Tobacco Control Leadership Program, a two-week summer course held at the Bloomberg School of Public Health, is one example of the programs launched to build capacity and leadership in low- and middle-income countries.[17]

Another key contribution was the expansion of the Global Tobacco Surveillance System through the development of the Global Adult Tobacco Survey (GATS). Launched in 2007, GATS is a nationally representative household survey of adults (age fifteen and older) to collect data on tobacco use and key tobacco-control measures. Within this period, GATS was carried out in fourteen countries where more than half of the world's smok-

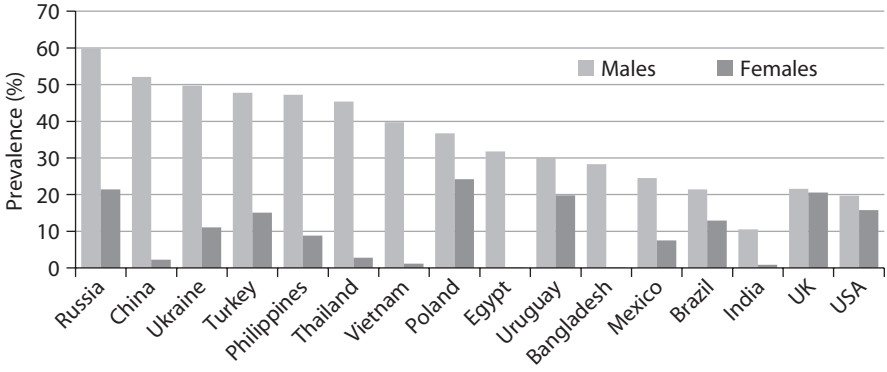

Figure 17.3. Prevalence of current cigarette smoking in fourteen GATS countries, plus the United Kingdom and the United States, among adults age fifteen and older, 2008–2010. ***Data from Giovino et al., 2012.***

ers live, establishing a tobacco-use baseline representing 4 billion people (figure 17.3).[18]

While individuals in nongovernmental organizations sparked the emergence and influenced the outcome of the FCTC globally and within countries, and private philanthropists provided needed resources to implement the treaty, at heart the FCTC is a story of WHO institutional leadership at a time when this organization has been subjected to harsh criticism. At the start, WHO was portrayed as being mired in bureaucracy, lacking global coherence and coordination across regions, exerting poor control over priorities and funding, and not representing all voices. Many of these criticisms continue to be leveled today, and WHO reform remains a popular, and never-ending, objective for the organization. Within this context of criticism, WHO's success with the FCTC merits acknowledgement.

WHO inspired its member states to set global norms and standards concerning state responsibilities with regard to tobacco control and provided a framework through which to promote and monitor their implementation. WHO's organizational structure and formal administrative arrangements, like those of other intergovernmental organizations with lawmaking authority, allowed it to provide stable negotiating forums.[19] WHO's leadership would not have been possible without the powerful individual leadership of Director-General Gro Harlem Brundtland. When

Dr. Brundtland was elected director-general, she immediately established the Tobacco Free Initiative (TFI) as a special cabinet project. Her unique experience as prime minister of Norway, as well as its former minister of environmental affairs, brought expertise in negotiating environmental treaties and skill in leading the member states through a highly political process. She was also prepared to stand up to the transnational tobacco companies after her experience in the wake of the Ekofisk oil-spill disaster, when she confronted the oil companies that were drilling in the North Sea.[20] As the FCTC process developed, she not only provided leadership externally, but also led her WHO team through difficult political calculations to ensure that the final treaty balanced strength with widespread acceptability.

Long-Term Norm, Policy, and Behavior Changes

Evidence continues to emerge suggesting that the FCTC fundamentally changed the way tobacco-control policy information was shared between countries and, consequently, accelerated the rate at which countries initiated policymaking processes and adopted new tobacco-control measures. Interactions between individual tobacco-control advocates were supplemented by formal transnational networking, which takes place regularly both virtually and in person at international events, regional intersessional negotiations, and technical workshops. The result is that policymakers representing nearly every country in the world, with bases in health and non-health ministries, further expand information sharing and knowledge generation within countries.

The FCTC's impact on policy adoption is borne out through a quantitative analysis. Slightly more than a decade after it came into force, over 170 countries have ratified the treaty, and more than 75% of the parties to the treaty have strengthened existing legislation or adopted new policies. Within five years, over 7,000 public health professionals and 5,000 journalists from low- and middle-income countries received training in tobacco control, and the numbers continue to climb.

The 2013 *WHO Report on the Global Tobacco Epidemic*, marking ten years since the adoption of the FCTC, found that more than 2.3 billion people—a third of the world's population—were protected at that time by at least one of the measures at the highest recommended level.[21] In addition, nearly 1.3 billion people were newly protected by at least one measure that had been passed since 2008.

The passage of complete public and workplace smoking bans was the most commonly established new measure—between 2007 and 2012, thirty-two countries had passed complete smoking bans covering all workplaces, public places, and public transportation, protecting nearly 900 million additional people.[22] New FCTC-compliant health-warning labels on tobacco packaging were implemented in twenty countries, while complete bans on all tobacco advertising, promotion, and sponsorship were put in place in sixteen countries, protecting over half a billion more people. Raising taxes to increase the price of tobacco products, the most effective tobacco-control measure, remained rare; only fourteen countries and one territory increased their tax rates to the WHO-recommended level.

A handful of countries have witnessed spectacular success on the heels of the FCTC. In Uruguay, for example, between 2005 and 2011, the prevalence of tobacco use decreased annually by an estimated 3.3% (equivalent to 23% over six years). Turkey, notably one of the Bloomberg Initiative's fifteen priority countries, experienced a 13% relative reduction in smoking prevalence between 2008 and 2012.[23] Nonetheless, while some parties have made substantive progress since ratification of the treaty, others have failed to translate the treaty into meaningful domestic laws or actions. There are numerous explanations for this inaction within countries, ranging from tobacco-industry influence, to alternative priorities, to a lack of domestic capacity.

Conclusion

The FCTC changed the global enabling context. To combat the rising epidemic of tobacco use, driven by multinational corporations, a global movement has grown to slow and end it. This movement, beginning with a network of organizations and leaders, is now funded and better organized; tobacco control is now framed and sustained by the FCTC. While this convention has a top-down structure, it was created primarily by outside-in, evidence-based action. This is a key example of how a three-way partnership can work, as well as a demonstration of how evidence can influence what would once have been viewed as an impossible policy. The FCTC is unique within international law: from the short time span within which the negotiations resulted in a comprehensive and structured text, to its rapid entry into force, and its implementation in dozens of countries worldwide. This speed is reflective of the treaty's overwhelming buy-in and accepted legitimacy among WHO member states.

As a consequence, tobacco is accepted as a health threat worldwide, and global norms dictate that governments of all incomes and forms undertake specific measures to prevent and control tobacco use among their citizens. There is no question that globally, tobacco-control policies are, on average, stronger today than they were when the FCTC was adopted. There is also greater capacity to track the tobacco epidemic, and evidence is emerging that shows improved policies have resulted in continuing reductions in the prevalence of tobacco use within the populations covered by those policies. FCTC implementation, however, is not even. While some countries have been able to leverage the FCTC, others have seen little or no improvement. Competing health priorities, financial crises, and industry interference all challenge its effective implementation. As in the past, the continued collection of evidence, individual and organizational leadership, and multilevel norm changes are all required to continue to scale up and sustain this global momentum in tobacco control.

18

Urban Agriculture

A Powerful Engine for Sustainable Cities

Jac Smit

This unabashedly enthusiastic presentation of urban agriculture serves important roles in this book. First, it is exciting to see such potential growing spontaneously from the bottom-up around the world. Second, it is noteworthy that global scaling up can just happen, unlike the tobacco-control case (chapter 17), where this service to humanity had science preparing and then leading a tough global challenge. Urban agriculture, like development (which has also simply happened across history) seldom has been intentional, or scientific, or effectively led by either the top-down or the outside-in.

Not mentioned here are the problems with urban agriculture. Operating without regulations, many practitioners use too much fertilizer; others inappropriately use wastewater and human waste; and some agricultural practices impede on the smells, sounds, or sights experienced by their neighbors. While urban agriculture may be operating without top-down regulations, what is perhaps more to its detriment is that it often also operates without proper education for its practitioners, who are figuring things out as best they can, although massive amounts of knowledge have existed throughout history. Typically, rural farming has its lessons passed from parents to children, across generations.

What this case nicely shows is an idea going to scale through impromptu actions by the bottom-up. If such impact can spontaneously happen, imagine the possibilities (with fewer negative effects) if the top-down provided guiding policies; the outside-in provided informed innovations; and individuals were collaborating in action groups, where systematic evidence (rather than random thoughts) was continually improving behaviors.

People around the world are returning to farming in cities, but no government or donor leads this resurgence. As a Ford Foundation urban adviser in 1968, I found that people in Calcutta were producing one-quarter

of the fish and vegetables being consumed there, using wastewater and solid waste to grow their crops. I began to realize that in many cities today, urban agriculture supplies between one-quarter and one-half of city dwellers' total food needs. In the 1980s, a compilation of thirty-two studies from twenty-five countries showed that urban agriculture had taken hold in hot and cold climates, as well as in command and open economies.[1]

Urban agriculture does not specialize in large-scale single crops, such as cattle or cereal, but in perishable foods (vegetables, fruit, fish, poultry, small mammals) that are all high in vitamins, minerals, and proteins, and the diversity of crops is one of its exciting attributes. Urban agriculture typically produces three to fifteen times more per hectare (2.5 acres) than do common rural methods. It uses recycled urban waste as a major input, not because of idealism, but because urban waste is abundant and available. The urban farmer's labor-intensive methods use far less water and chemical fertilizer per unit of production than does industrial agriculture. But urban agriculture offers more than an increased array of food sources and better food quality. It is an entry point for change for cities, with a wide range of benefits beyond food production at the point of consumption. It increases civic stability, reduces traffic congestion and overall energy consumption, improves air quality, and gives the enterprising, unskilled poor a way to start making money.

Bringing farming into cities reduces their ecological footprint. Today, greater London requires 125 times its actual area to provide the food its residents consume. This footprint reaches to the farthest corners of the Earth, with tea coming from China, shrimp from the Bay of Bengal, and flowers from Kenya. Urban areas cover 3% of the planet's surface but import two-thirds of the natural resources people consume—and most of what is brought in is converted into polluting waste.

An example of what is possible comes from Valparaiso, Chile. There, Theodora Luna rises early each morning and feeds her quail and guinea pigs the leftovers from her family's and a neighbor's meals. Before preparing breakfast, she inspects the fence of the one-tenth-acre (0.04 hectare) home plot for damage from the community's free-ranging goats. At the end of the day, she tends her raised beds of vegetables, trellises of cucumber and zucchini vines, and flats of hydroponic lettuce on her roof. But this tiny farm-in-the-city produces one-third of the food and two-thirds of the protein and micronutrient needs of Luna's family of five. In addition to

giving her family a healthy diet, Luna raises culinary and medicinal herbs that are sold on a consignment basis by a grocer near her husband's place of work. She generates her own fertilizer by composting her family's and a neighbor's wastes and uses the gray water from their kitchens and baths for irrigation. Her small plot is green from boundary to boundary, and the space is cleaner and cooler than the many brown plots in the neighborhood. Her children are healthier than the average child in the neighborhood. Her farm is making an impact on her family, and it is also an example to others.

Stoitcho Ainarov lives in Viongradetz, a suburb of Sofia, Bulgaria. Around his house is a 30 × 40 meter (100 × 130 foot) orchard of fruit and nut trees. Many Bulgarian suburbanites have similar orchards. Ainarov receives a monthly pension worth US$35, and he lives well. He sells grapes to a local cooperative and specialty fruits to city merchants who knock at his gate, and he sends fresh food regularly to inner-city relatives. Within his walled compound, Ainarov practices some of the most advanced concepts of organic urban agriculture. Grape arbors shade vegetables; on a patio goats eat alfalfa and crop wastes; and pigeons provide manure, enriched by their feeding in nearby fields and forests. All solid waste is composted, and all wastewater is used for irrigation. Many products are processed onsite, including wine, dried and canned fruit and vegetables, and pickles and sauerkraut. He harvests most vegetables—potatoes, beans, peppers, tomatoes, mushrooms, cabbages, and onions—at least twice a year. Chickens, pigeons, and turkeys produce meat and eggs. Whereas agriculture in the United States requires eight offsite calories of energy (from petroleum and other sources) to produce one calorie of food, Ainarov reverses the ratio and produces eight calories of food for every one calorie of external energy.

Current World Trends

In 2010, half the world's people were living in cities; that share is expected to increase to three-quarters by 2040. From 80% to 90% of this urban population growth will occur in what are now developing countries. As urbanization and its associated economic developments grow, so will urban sprawl, consuming farmland and producing solid waste and wastewater, with higher disposal costs and greater health dangers. Urbanization, with what would otherwise be major strains on infrastructure and

mushrooming social pressures, might be made less stressful by promoting within it what is traditionally viewed as rural life. Urban agriculture can turn some of the challenges of urban life to advantages, creating soil, fertilizer, and sources of water and promoting community participation and cohesion. In an era when farmland is disappearing, urban agriculture can increase the space available for farming.

The potential is so full of promise that spontaneously, everywhere around the world, cities are sprouting farms. In places like Berlin and New York City, the growth of urban farming is sufficiently vigorous that it has become a hot political topic; neighborhoods take action to defend community gardens from takeovers by builders. In Berlin today, 60,000 citizens rent land for gardens, and 15,000 wait to do so. In Harare, Zimbabwe, agriculture within the city limits doubled between 1990 and 1994. In greater Moscow, in 1970 one family in five was raising food; by 1990, three people in five were devoting 20%–60% of their time to farming; and by 2010, this momentum, while no longer growing, had held steady in Moscow, despite a reduction of the earlier economic pressure that had helped spawn this food growing in that cold climate.

In the United States, registered farmers' markets, which rely on locally grown products, increased by 40% (from 1,750 to 2,410) in 1994–1996. According to the US Department of Agriculture, they then more than tripled in the years to 2014, to 8,144 such markets nationwide. In Argentina, a national community-and-household-garden program grew from 50,000 members in 1990 to 550,000 in 1994. In China, 40% of urban jobs are categorized as agricultural. In Mozambique's capital, Maputo, the share was 30% in 1988. Two-thirds of all families in Dar es Salaam, Tanzania, produced food in 1988, up from one-fifth in 1968. Many cities are now self-sufficient in producing vegetables to meet their needs: from one of the world's largest, Shanghai, to Mali's small capital, Bamako.

All of these are SCALE One examples, places where single successes have led to replications of urban agricultural efforts elsewhere. A spontaneous, exponential growth is under way. In few instances was it led by the government or nongovernmental organizations, but urban agriculture almost always just happened. But as more and more communities today wake up to its potential, an enabling environment is being created by governments and nongovernmental groups that see its many benefits. Urban agriculture is an example of a solution rising by self-assembly to meet a

larger need. It is an example of emergence in complexity theory, where forces active in a system cause a certain pattern to arise, not just in one place, but around the world.

Consequently, many cities are systematizing this emerging extension, creating a SCALE Cubed type of enabling support. Eighty percent of Cuba's people live in cities. When massive infusions of money and food from the Soviet Union ceased in 1992, government leaders opened public lands to gardening; the government provided seeds, training, marketing, and technical inputs; and two television programs a week broadcast advice to the new farmers. Romania adopted similar policies following the breakup of the Soviet Union, and food production in its cities jumped from 6% to 26% in six years. In Loudon County, Virginia, the third-most rapidly urbanizing county in the United States, farms, farm enterprises, and farm-generated income have increased in every one of four survey periods from 1978 to 1996, with the momentum holding stable ever since.

Changing Patterns of Food Supply

This idea is not new, nor is it being applied only in one part of the world. Urban farming has been around for millennia. The hanging gardens of Babylon, praised by historians for their beauty, were also a source of food. Machu Picchu, high in the Peruvian Andes, was nutritionally self-sufficient. The medieval cities of Yemen produced all their own fruits and vegetables. Mexico City, perhaps the largest city in the world in the fifteenth century, converted swamps into farms and fishponds and produced half or more of its own fish, livestock, fruit, and vegetables. From Nineveh to medieval Paris, ancient cities tended to expand in ever-widening rings. Food that stored and traveled well was produced in relatively remote areas. Food that spoiled easily or tasted better fresh was grown within or just outside the city precincts. Imperial Rome followed this pattern, importing grain from North Africa and Asia Minor but growing its own fruits and vegetables. In both Rome and the ancient Mayan city of Tikal in Guatemala, the proximity of production allowed perishable food to be harvested at night and early in the morning, in response to reports about daily demand coming by runner from the central markets.

But the industrial age, with its ideas of centralized and specialized production, brought a different pattern to agriculture. Rapid and sophisticated transport networks promoted work specialization, and food production

moved ever-farther away from consumers; foodstuffs were shipped first by rail, then by trucks via nationwide networks of limited-access highways, and increasingly now by jumbo, specially refrigerated cargo airplanes. Today the average item on a supermarket shelf in New York City has traveled 1,500 miles (2,400 kilometers). Artichokes picked in fields in California are delivered to stores 3,000 miles (4,800 kilometers) away in Manhattan, side-by-side with fresh fish from the Caribbean. The food supply system replaced *proximity* with *access*.

Yet, at the same time centralization and specialization are occurring, another pattern is emerging, one involving nodal networks, supported by nearly instantaneous, computer-driven information. In wealthy Loudon County and in impoverished Port-au-Prince, Haiti, farmers can learn hour by hour what will be in demand in markets tomorrow, making choices about harvesting and shipping accordingly. The remarkable spread of mobile telephones allows this localization in the same way that the technology of tractors and mass production allowed the earlier aggregation of agricultural transformation—the access feature is again changing agriculture, but now in a way that promotes proximity. The localized, specialized structure favors farmers who are closest to urban markets; this newest pattern resembles in many ways the one prevailing in ancient Rome and Tikal, where runners took up-to-date information to nearby farmers. Today text messages on the phone carry the news to the farmers, and urban and agricultural sectors again enjoy a symbiotic relationship.

Old and New Technologies

Today's researchers are studying agricultural methods of the past, such as the Incas' use of standing-water surfaces to fight frost, the combined land and water farming in fifteenth-century Mexico, crop specialization in ninth-century European towns, the *marais* system of nineteenth-century Paris, and the dry-climate, intensive production of the Navajo and other southwestern Native American tribes. Thousands of years of serious agricultural research are resources to be learned from as food production today moves adjacent to and is co-existing with human habitation.

Some of these ancient methods are being adapted to modern uses across the world. It is a new mode of globalization, bringing knowledge from the past to present needs in another part of the globe. Farmers in Havana are improving on the biointensive growing methods of eighteenth-century

China, now called *organiponicos* (all compost, no soil). Java is applying the fifteenth-century Mexican system; Ghana is using both the Mexican and *marais* systems. Mexico itself has adapted an old Mayan waste-treatment system, using fiberglass containers to co-process sewage, garbage, and human waste for food production in a residential neighborhood.

New technologies are also playing important roles in this modernization of older forms of agriculture. The glass greenhouse, invented in 1850, revolutionized agricultural production in the developed world. Since 1980, light, easy-to-assemble plastic greenhouses, much less expensive in cost, have expanded that revolution worldwide, enabling farmers in rich and poor countries alike to conserve heat and moisture efficiently and reduce losses from theft, wind, and insects. The development of new plastics has also enabled fish farming to become a fast-growing sector of urban agriculture. Hydroponics (growing food without soil) is the second-most rapidly spreading technology. Hydroponic projects range from large, well-financed firms in Rotterdam; to simple, water-filled trays in the barrios of Bogotá, Colombia; to the use of sterile media in Hawaii (volcanic ash) and St. Petersburg, Russia (peat moss). Hydroponic produce includes lettuce, tomatoes, herbs, and a score of other crops that sell at premium prices.

New technologies are also advancing treatments of urban waste—including the use of worms in vermicomposting and duckweed (a small, high-protein floating plant) in sewage treatment—to produce fodder and plant nutrients. Genetic reengineering is increasing yields, making plants and animals hardier and improving the taste of many products, from Dutch peppers to Peruvian guinea pigs. A diversity of crops (such as mushrooms, rabbits, seaweed, and potatoes) is being designed for the particular needs of urban agriculture, as occurred in rural agriculture decades earlier.

The Benefits: More than Food

Cost Saving

In some cities, more money is spent on waste management than on education. Urban agriculture offers cities a chance to reduce expenditures on waste disposal by using a tenth of the waste as fodder for poultry, fish, and livestock, and over two-thirds of the solid and liquid wastes for soil enrichment and irrigation. Such strategies have a ripple effect, radiating out in unexpected beneficial impacts, such as reducing traffic congestion, air pollution, and strains on infrastructure (roads, water-supply systems,

sewers) by decreasing the number of trucks hauling waste and food on city streets. Logistical contributions also come from the other direction; urban farming is synergistic with these activities, as moving food production closer to the dinner plate reduces agricultural investments.

Much of the urban infrastructure needs cost-saving help. Replacing nineteenth-century waste-treatment systems with ecologically more-sustainable modern ones saves money and benefits the urban environment. Cities in China are adding shredded plastic bags to the soil to lighten it, as well as to improve drainage into the soil. Elsewhere, municipalities recycle solid waste into roads. And some cities are cooperating with local industries to recycle the waste products of one system into a resource for another; in Texas, for example, a large manufacturing company is transforming waste from making blue jeans into a soil conditioner.

Urban agriculture can also reduce the costs of acquiring, maintaining, and policing rights-of-way for roads, railways, and utility services. Five benefits result from an opening up of urban spaces to farming: (1) rent from farmers for the land; (2) soil maintenance; (3) ecological diversification; (4) informal policing of the land as people monitor their crops; and (5) the food itself, as people feed themselves and their neighbors.

Opportunity for the Marginalized

Farming favors women, youth, the elderly, and the poor—all groups that are usually discriminated against in the regular workplace—since livestock and produce don't care whether they are being tended by one type of person or another. To plants and animals, what matters is how consistently and well they are raised. Thus urban agriculture is also frequently a way of opening up opportunity for social groups and narrowing the equity gap.

Urban agriculture minimizes demands on transport and infrastructure and generates profits in sectors that otherwise are being economically squeezed. This replacement factor can be significant. My grandfather lived at the edge of nineteenth-century Amsterdam and worked as a middleman, buying from rural farmers and selling in the city. A food-supply system that brings produce from California or Israel to Chicago has many such middlemen, each of whom must trim their economic margins to be efficient. All that trimming does not allow much income to trickle down to the farmer. In contrast, urban farmers often sell their products directly

to the consumer. For example, in my hometown the direct sale of a crate of lettuce returns US$15 to the farmer, whereas selling that same crate through middlemen to a distant market brings the farmer US$5. Higher profits for small producers expand the economic opportunities for them. In addition, by being in daily contact with the growers, chefs and greengrocers are better able to serve their customers.

In Ho Chi Minh City, Vietnam, 70% of all family expenditures in 1994 were for food, a percentage that is not unusual. In Mumbai, India, and Kinshasa, Democratic Republic of the Congo, the rate is 50%. In cities like Zurich, Switzerland, food accounts for only 10%–15% of the economy, but, as a result of packaging, storage, and transport, the demand on the environment is three times greater. So, even in wealthy cities, where a lower percentage of a person's income is related to food, a change to urban agriculture would bring important savings, with money being spent on food rather than on food-support services. The result is that while benefits concentrate on small producers, the radiating impact can be many times larger.

Increased Stability and Civility

One of those radiating benefits is that farming promotes a more stable and more civil urban society. In communities with small-scale agriculture, interactions between neighbors intensify, with more face-to-face communication and a sharing of concerns. People who deal with each other about food-related matters have a common denominator—peaceful streets—a social consequence with longer-term implications than the immediate moment. Simply put, people come out of their homes to take care of their adjacent fields. And creating a more beautiful and healthier place to live strengthens social cohesion and collective empowerment. In the 1980s, studies in Seattle, Washington, showed that community gardens delivered more social benefits per dollar invested than did libraries or community centers. Building on this rationale and working under tight budgets, cities from California to Canada to Colombia to Cuba are supporting school-based instruction in urban farming.

Farming is a city-building activity. Hence, as a means to create urban networks, there is an important role for SCALE Squared: experimentation and action learning, so the process continually fits the locale and expands to more users. Urban agriculture can just happen around the world today, but the potential for societal networking can be augmented by training, leading

to many of the other ancillary benefits of urban agriculture. Moreover, SCALE One demonstrations are scattered, so utilizing the cross-sector enabling policies of SCALE Cubed can help integrate marginalized populations, who can use this farming opportunity as a means to acquire supplemental education and job training, as well as to systematize the spontaneous community policing and surveillance that is a result of urban agriculture.

Civil society is promoted through a multiplier effect. Home businesses of any kind encourage other home-based activities, including those that strengthen positive influences in raising children. Children *get* farming, and it helps them grow into adult responsibilities. In addition, cities where economic pressures compel both parents to work outside the home, leaving their children unsupervised before or after school (if schooling is available at all), often have greater degrees of alienation and higher crime rates. Urban farming can allow one parent to work at home; provide an activity for the entire family for an hour or two a day or on weekends; and offer the bonuses of a larger income, better food, and social benefits for the person staying at home.

With their investment in the productivity of urban land, local residents promote sustainable communities and help reduce what otherwise appear as tendencies toward social entropy and societal fracturing. Farming in open city spaces fills in social as well as physical gaps, enabling people to come together as neighbors, rather than as potential adversaries, and creating spaces where people can congregate, doing productive work. Further research may also reveal a potential where participation in urban agriculture could reconnect city dwellers with nature.

Improved Health

Children often experience the city as a more hostile habitat than adults do. Their hands are more likely to be covered with uncollected trash. Being shorter, they are more likely to breathe ground-hugging foul air, with its variety of pollutants. If their families are poor, they may lack access to good food, since in many cities, stores are the only source of food. Urban agriculture thus makes a fundamental contribution to children's health. Plants grown in the city change the urban environment, cleaning the air at street level and making food more available to residents, especially children.

Fresher food brings better health. The more time that passes between harvest and consumption, the greater the loss of micronutrients, especially vitamins, which are vital for young, growing bodies. For example, week-old spinach has lost half of its vitamin D. The poor in Dar es Salaam, Tanzania, get better spinach than the wealthy in London, since 90% of the leafy vegetables eaten in Dar are grown within the city. Protein sources tend to be still more costly; not only are they higher up on the food chain, but often they also require transport and special storage. The production of small livestock—poultry, fish, rabbits, guinea pigs, and the like—in the neighborhood lowers the cost of these meat sources and makes more protein available to the poor.

Further, agriculture in cities benefits human health by improving the soil and reducing the volume of solid waste and wastewater. Fruit, vegetable, and ornamental plants and trees attract birds, bees, and butterflies, which, beyond their important role in pollination, create a more interesting and pleasant environment for humans. A city with green, growing things is also cooler in the summer. Additionally, plants add moisture, and, in cities such as Lhasa, Tibet, they have been shown to reduce average wind velocities by half a kilometer (0.3 miles) per hour as storms come in off the plateau.

Going to Scale with Urban Agriculture

The largely spontaneous increase in urban agriculture around the world differs fundamentally from the coordinated agricultural expansion of the Green Revolution. Both were and are central to improving human well-being. But urban agriculture self-assembles, expanding in a natural way. It thrives when given an enabling environment—a three-way partnership of experts with ideas, proactive city governments, and citizens who embrace the vision—but even without this partnership, people participate in the phenomenon on their own, as they have across millennia. But now, in city after city, a new pattern of behavior is unfolding as people start urban farms and relate with one another to support this effort. Locally relevant information accumulates and, from this, diversity expands.

Urban agriculture thus displays the three dimensions of SCALE. Small gardens have always been present in cities, but a huge and continuing SCALE One numerical increase has occurred in the past two decades in places where municipalities have adopted SCALE Cubed supportive policies. Where policies were not supportive, expansion occurred more slowly,

but numerical growth still seems to be occurring in almost every city worldwide. Frequently, there is the added qualitative dimension of SCALE Squared—action learning and experimentation—as entrepreneurial individuals, the media, income-generating opportunities, and third-sector organizations join together, with the best among them serving as demonstration and experimental sites. In this information-based age, news about changes in technology and policy moves easily and quickly, allowing them to be adopted and adapted by communities throughout the world.

Urban agriculture and rural agriculture are complementary activities. Urban agriculture provides clear advantages for certain crops. It involves different types of stakeholders and responds to different demands. It enables towns and cities with tight budgets to gain green space at minimal cost, along with people to tend it, and perhaps revenue through taxes or rent, rather than the more expensive approach of increasing green space simply by creating parkland.

Agriculture directly helps the most needy in a city (a vital dynamic in a world or rising inequity, where these people need all the opportunities they can get). It creates economic options for many subgroups that otherwise experience food insecurity, particularly for women, who can engage in these activities at the same time as they are raising their children. It expands and improves the food supply. It creates a nonmonetary livelihood for people with little money, and it allows scarce financial resources to go toward other needs, such as medicine, shelter, and clothing. For the wealthy who do not want to dirty their own hands, farming in the cities provides fresher food than was previously available. Through farmers' markets, it helps bridge social divides, as these markets serve as gathering places for subgroups within a city. By diversifying food production, urban agriculture fosters export opportunities: locating food production near airports allows regions to take advantage of their climates to produce perishable foods for other locales. Aided by quantum advances in technology and communications (especially mobile phones), small-scale, community-based urban agriculture is able to utilize its reduced plot size and greater flexibility to achieve especially efficient and productive arenas for societal advancement.

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Communities and Government Learning to Work Together

CLAS in Peru

Laura Altobelli, Patricia Paredes, and Carl E. Taylor

The CLAS experience follows a two-decade timeline, roughly equivalent to the evolution of SEED-SCALE. As these UNICEF-sponsored task forces were starting, Carl Taylor was invited to Peru to advise the government on how to connect the top-down Peruvian health services with the imperative the government had recognized for bottom-up engagement. The challenges of sustaining community engagement against top-down pressure (especially from the medical profession) illustrate how scientific evidence can play an important role to buttress the case for community capacity and inform policy decisions.

Those who have tried only top-down or outside-in stimulus often think that promoting community participation is a slow process, but the CLAS (*Comunidades Locales de Administración de Salud* [Local Health Administration Communities]) movement in Peru demonstrates that the process can scale up quickly, even across a whole country. To do so, the main requirements are a truly enabling environment for community empowerment, and persistence by officials and experts in establishing that environment to foster trust and partnerships; this allows the capacity of the people time to mature. Then, as this case illustrates, scaling up can virtually explode. As it does, however, that momentum can be troubling to the prior power dynamics.

Origins

In 1992, after a decade of violence, the Sendero Luminoso (Shining Path), a Maoist terrorist movement in villages of the Peruvian Andes, was finally vanquished with the capture of its leader. The Ministry of Health

(MOH) was eager to reestablish social services in the mountains, but in many villages the people refused to let health centers be reopened. Officials were baffled by community demands that local, nonmedical people be involved in running local health facilities. We were part of a team from MOH that visited these villages. In a public meeting, one community leader from Quinua, a village near Ayacucho, stated: "We showed we could defend ourselves from terrorists. Now we want responsibility for protecting the health of our families and children." The women said that it wasn't the police or the Peruvian army that defeated the Sendero, but the *ronderos*: self-defense groups formed by village people—especially women—who sat armed with guns in stone pillboxes around their villages and shot guerrilla gangs when they came to kidnap teenage boys to join the Sendero.

The villagers said that the old health system did not meet their needs: doctors from Lima were only interested in getting back to the city and making money in private practice. People especially complained about payments for drugs: "Money we pay for medicine [initially provided for free by the government] should replenish our local health post's supplies. Some people are too old and too poor to walk to distant health centers. Work in each community needs to be strengthened. We need *promotores de salud* (community health volunteers) to extend outreach for public health and pregnancy monitoring." Such community self-reliance fit in well with the policies then being advocated by the national government.

A proposal for community-based health services was drawn up, and in May 1994, the government issued a decree creating CLAS. Under its original provisions, each primary-care facility would have a committee composed of local residents: three members would be selected by the community and three by MOH, and the manager would be the senior health officer of the health center. Each community committee would sign a contract with the regional MOH office as a registered nonprofit organization and then receive authority for controlling the health center and hiring personnel beyond those assigned by the government. They could use funds raised by the health center and create programs to meet their own priorities, so long as they also facilitated national programs and priorities. Accepting part of the SEED idea, the committee and health center staff were to set local priorities to create an annual local health plan for the communities served by that health center. After a new law regarding CLAS was passed in 2007, the CLAS committee was expanded to include elected representatives from

each community in the center's jurisdiction, as well as local representatives from several governmental entities.

Pilot CLAS programs were begun in 1994, under the guidance of a small MOH team working directly under the Minister of Health. The project started with four primary-care facilities with CLAS committees in the Ayacucho region, and nine CLAS committees in the Ica region. Huge national demand quickly overwhelmed this initial planning, and about 250 more CLAS committees were organized by the end of that year. Four years later, in 1998, 548 of the 5,060 government health facilities were CLAS centers, with another 150 waiting to be recognized. By 2002, more than 2,000 CLAS-run primary health-care centers were providing care for more than one-fourth of Peru's people.[1]

Scaling Up

CLAS centers scaled up quickly, because, for the first time, primary health-care services were able to manage some of their own funds to meet urgent needs for medicines and supplies, instead of having to wait weeks or months for the fulfilment of requests through the laborious public-acquisitions system. It wasn´t long before CLAS could also invest in other aspects of quality improvement, such as maintaining the facility, buying furniture and equipment, or even building an addition onto the health center. CLAS could also decide to provide personnel incentives, hire additional staff, or bring in specialists. Communities, feeling this degree of control over their health services, became empowered.

From the outset, the regional health offices had problems with the CLAS concept, mostly as a result of their loss of control over resources that were now managed by community-engaged decisions. Previously, the regional offices had sent pharmaceutical supplies to local health centers and received the money that these health facilities collected from the sale of drugs. Now CLAS committees could keep the money from the sale of drugs to purchase their own resupply, and they could decide what to purchase. Fees for services (though minimal) that were collected from clients for health consultations could also be kept by CLAS centers as their own income.

As the communities became engaged in health services in the early phase of CLAS, regional differences emerged. In Tacna, Moquegua, and Arequipa, the regional directors enthusiastically supported CLAS; every health center had a committee; and the regional office influenced who was on the

committees and what was done. Many other regional offices took a neutral stance, and both CLAS and non-CLAS facilities coexisted in the same region. CLAS did quite well in this situation; it blossomed as long as basic support was provided. Other regional offices resisted the concept, refusing to create new CLAS projects and reducing the transfer of funds. The CLAS committees in these areas found creative ways to continue providing services, charging fees on a sliding scale, according to a person's ability to pay, and using volunteer workers. To serve the community better, most CLAS programs expanded their service from six to twenty-four hours a day and hired more personnel; in the process, they served more clients and received more income from fees for services, creating a cycle of improvements in quality and coverage. Such actions fostered community solidarity behind the program.

The physicians' union was always an opponent of CLAS, since the rising community solidarity was a challenge to their health-care dominance. On one evaluation visit, we found a sign on the front door of one regional health office saying "Health Workers Boycott CLAS." The union's official position on CLAS was that the quality of care would suffer when the community got involved. The real reason behind their stance was the ability of CLAS to hire doctors, under private contracts, who would then be accountable to the community, while the union's goal was to obtain permanent, government-payroll contracts for all doctors, ensuring a six-hour workday, a lifelong pension, and little accountability.

A major boost for CLAS came from the new governmental health-insurance program, piloted in 1998 in CLAS centers, which were chosen because they could receive insurance reimbursements directly, while non-CLAS centers could not. CLAS no longer had to depend on occasional fees for services from those who could pay; rather, they now received insurance reimbursements for poor clients who previously had paid nothing. With more income, CLAS centers could hire additional health staff and continue to expand and improve the quality of care. A further scaling up, to 32% of all national primary-care facilities by 2002, was supported by strong CLAS advocates within MOH, as well as from the World Bank, which included the expansion of CLAS as a condition for a loan to the government of Peru.[2]

Problems that had arisen in the first years most likely were related to misunderstanding what CLAS was (and was not) and how it operated.

MOH officials and technical staff correctly had the idea that CLAS created a new form of community participation. But when not everyone in a community survey said that they knew a CLAS committee was supposed to help administer their health services, some saw this as a weakness and started to criticize CLAS as not truly having community participation. The term "community participation" has many meanings, and CLAS was not just a new form of community participation in health. It was also a new model of health-care management and financing that modernized the administration and delivery of primary health-care services, with a greater orientation toward community health.

Formal Evaluations

In 1998, three independent studies and one internal evaluation commissioned by the Ministry of Health were conducted on the CLAS program.[3] The independent studies were done by the Research Center of Universidad del Pacífico (CIUP) and a consultant for UNICEF and the Inter-American Development Bank. The first two of these studies used data from a 1997 national survey of quality-of-life (National Survey of Households, or ENAHO) from a countrywide random sample of 3,843 households in CLAS and non-CLAS areas; in addition, both studies conducted qualitative interviews with key informants. Two-thirds of the people surveyed came from the two lowest economic quintiles; their homes had dirt floors and usually had no electricity. Significantly greater use of primary health-care services in response to illness was found in households located in areas served by CLAS-run health centers; in non-CLAS areas, patients were more likely to use pharmacies or a hospital. Poor people attending CLAS facilities were more likely to get free care than a similar population attending non-CLAS ones.

The CIUP and UNICEF studies found that nearly half of the CLAS committee members were women who had served in leadership roles in volunteer public-service programs. CLAS committee members voluntarily contributed an average of fourteen hours per week to CLAS-related activities. Both studies showed that these women were leaders in mobilizing communities, and they continued as volunteers, performing a variety of essential functions. For example, they promoted behavior changes in their communities that supported immunization, nutrition, and maternal care. As expected, women and children were the primary users of health services for preventive care.

In some urban areas, CLAS committees raised enough money to expand both their facilities and activities, such as building a wing for maternity services while also organizing effective community outreach. Ancillary programs included building soccer courts on health-center grounds and sponsoring youth soccer leagues—important activities for growing community empowerment, and evidence of a radiating health action, which is part of the SEED-SCALE concept of the revolution of rising aspirations. Organized groups of community health workers were particularly effective in building relationships with governmental and nongovernmental programs for women and children.

The UNICEF evaluation confirmed the effectiveness of SEED-SCALE principles: the strengths of CLAS derived from "the involvement of community members in (1) identification and prioritization of community problems based on a health assessment via household survey; (2) planning solutions in ways unique to community needs and resources and formalization of solutions in the annual work plan; (3) decision-making on the use of funds for personnel, supplies, equipment, maintenance; (4) monitoring and evaluation of the local health program; and (5) monitoring of personnel, in terms of attendance and treatment of patients." CLAS committees met regularly; meetings were led by a community member; women took part in the meetings and decision-making; and the needs of the socially and economically disadvantaged were addressed. CLAS committees participated in decisions to expand clinic hours, reduce waiting time, and increase the number and kinds of personnel available. There also were more home visits and promotional activities in the community. About 90% of CLAS health facilities reported such involvement in the community; non-CLAS figures were much lower.

Many officials objected to this level of community involvement, maintaining that untrained people could not help to manage a facility; they also had special concerns about financial mismanagement. The evaluations, however, found that CLAS consistently had transparent management and financial accountability. Under the new rules, growing amounts of income from rotating drug-fund sales and fees for services were kept by CLAS centers, which allowed them to invest in and expand subsidized services. Non-CLAS facilities had to continue the practice of depositing their income into regional health accounts. The CLAS model reduced the amount of funds controlled by regional and local health officials, who viewed this loss of

control over money as a negative factor that outweighed the positive: an expansion of services and benefits to people.

Evidence of the growing quality and improved management of CLAS-run health facilities to achieve greater coverage in their services was shown in an Inter-American Development Bank study using national service data from primary health-care facilities.[4] CLAS facilities were found to provide services for 75% of the population in their geographic jurisdictions, versus 60% coverage by non-CLAS facilities. Furthermore, the same study conducted direct interviews in health facilities and showed that CLAS centers were more successful than non-CLAS ones in garnering direct involvement of the community in the management of health services: women had greater participation and community members played roles in assessing community needs, setting priorities, planning activities, formulating policies, and making decisions on financial and logistics-management issues. The 1998–1999 internal evaluation revealed that the CLAS model permitted "better performance of indicators of service organization, quality of care, and equity in economic access."[5]

These findings were further confirmed by study of the cost efficiency of 674 health centers in three regions of Peru (coastal, mountains, and jungle) that included 200 CLAS and 474 non-CLAS facilities. CLAS centers assisted 70%–80% more patients and had a greater income from fees and insurance reimbursements, compared with non-CLAS ones.[6] A later analysis of national survey data showed that poor rural children under five years of age who lived in areas served by CLAS health centers had significantly lower chronic malnutrition than peers who were served by non-CLAS centers, providing evidence of the health impact of greater access and better-quality services.[7]

Information Systems and Community Statistics

The original plan was that each committee in the CLAS centers would do a household survey for accurate data, which would become the basis for local planning. In places where this occurred, local data were gathered through partnerships, and survey coverage was typically close to 100%.[8] The resulting statistics were more accurate than the estimated projections from the census survey the government used for planning. Unfortunately, the Ministry of Health did not allow CLAS to use their own surveys, so this practice was forced out, and to this day only census projections can be used.

From the beginning, CLAS centers became aware of the number and needs of the poor, and most created a sliding scale of fees for services and medicines. Community members identified the neediest families, and some developed computerized databases of these. Home visits then targeted these households, and poor families were given cards to show that they did not need to pay consultation fees. Chincha's CLAS centers, for example, worked regularly in the neediest areas and concentrated on home visits. In Quinua, CLAS committees translated announcements of vaccination and sanitation campaigns into the local languages, to encourage families who otherwise would not have come to the center. Once the public health-insurance program was instituted, only the wealthier among the uninsured would be asked to pay the fees.

CLAS and the National Program of Health for All

Frequent changes in ministers and officials in Peru's Ministry of Health complicated national policy related to CLAS. First it was promoted, and then ignored. Nonetheless, the centers continued to proliferate because of the champions of CLAS policy within and outside MOH who were convinced by the evidence, and because CLAS was buttressed by the enabling normative framework that had been created at its beginning. As stories spread about the enthusiasm of CLAS committees, negative stories also appeared about some committees that may have had minor operational difficulties on issues where the norms were not clear. Rather than helping to solve these small problems with better norms and support for CLAS, some officials used them as reason to oppose the community concept. The officials' actions were urged on by the medical union, which claimed that community involvement in the oversight of health workers could jeopardize the quality of care. They wanted to bring the CLAS centers, especially their financing, under ministry control, with only a symbolic role for the committees.

Internal and external evaluations of CLAS, done in 1998 and presented at a meeting of regional health directors in 1999, persuaded the skeptics to compromise, and the government formally extended the program in response to growing demand.[9] Four regional conferences in 1999 and 2000 were the first instances where CLAS committee members shared their experiences and promoted new learning and progress. In February 2000, Peru's Ministry of the Presidency issued a working paper citing the contributions

of CLAS: "With stronger community institutions we can now transfer to the people competencies, responsibilities, and resources. Among the impacts of our communities' institutional strengthening is the emergence of the people's capacity to manage programs and projects. The Local Health Care Services Administration Committees (CLAS) are an example of participation in both identifying needs and managing services."[10]

In 2006, the World Bank published two books analyzing and making recommendations on how to best achieve development in Peru, with a focus on policies in favor of the poor. The benefits of CLAS are extolled in both volumes. Citing the studies on CLAS and their own assessments, they describe CLAS as having "flexible labor management, autonomy in financial management, and effective channels of accountability that translate into better client satisfaction, greater access of the population to services, greater quantity of intramural and health promotion activities, etcetera. It would be convenient to assimilate the lessons of this model or promote its development."[11] Both books highlight the need for the empowerment of clients as key to accountability, improved performance, and the provision of better services, stating that "the CLAS model has been important to empower clients."[12]

The apparent success of CLAS has been fragile, and its relations with government services remain uncertain, despite a new law passed in 2007 by the Peruvian Congress that formalizes citizen participation in the comanagement of primary health-care services through CLAS.[13] The momentum for its expansion in the early years depended mostly on the local peoples' enthusiasm when they were allowed to control their services and direct them to meet the priorities that the communities felt were important. The enabling framework that was to allow this community-based leadership drew directly on the paradigm described in this book. But although CLAS has grown rapidly and well, the project's success became a threat to health-worker unions, who prefer their shorter work hours, higher pay, and near-total lack of accountability for productivity or quality services as government-payroll employees. These unions hold strong sway over MOH through long-term workers' strikes, with their single-minded goal to add greater numbers of health workers to the public payroll.

One bright light in this shadowy horizon is the progress now occurring in the education sector, where most teachers are on the public payroll and the public teachers' union ruled with a strong hand for decades. The union actively prevented accountability for teachers, allowing mediocrity to flourish

in the public schools, with the result that Peruvian schoolchildren are among the least advanced in reading and math in the Latin American region. Prior to the existence of CLAS in the health sector, a similar model had been piloted in the education sector, with community involvement helping to oversee public school teachers. That effort was quickly crushed by the teachers' union. But the union has recently lost this control through new policies on teacher evaluations. As a result, teacher accountability is now improving.

Communities are eager to organize and solve their own problems. If appropriate support is provided by the government and outside experts, this can occur rapidly. The enabling environment needs proper legislation, however. It also requires champions who work to reduce countercurrents that see community participation, empowerment, and accountability as threats, rather than as elements in effective public services and human and social development.

Lessons from CLAS

As advisors on the initial creation of CLAS, we were not in a position to implement key components of the SEED-SCALE approach. The omission of SCALE Squared centers—to systematize a process of evolving sensitive and practical responses to local needs—was most unfortunate. A rapidly expanding program requires support, even if it is designed to be locally led and locally adapted. Lacking centers they could visit to see possible options, as well as to get training, CLAS committees had few places to turn to for help.

For that reason, beginning in 2001, we (Future Generations) implemented a series of projects in Peru to provide support to the CLAS committees, including the development of new legislative proposals, and, at the same time, to apply SEED-SCALE principles to pilot a SCALE Squared system in several areas, to help bring together concrete and tested answers to expand learning and adaptation in yet more communities. This new system, referred to initially as a "Model CLAS," was a redesign of the Ministry of Health's primary health-care services, building on and around the CLAS management model, with the goal of informing the larger system and serving as an observational training and experimental center, and introducing options to improve the health of communities, with a special focus on mothers and children, who represent the future generations of all communities and countries.

The Model CLAS centers are intended to show decision makers how to integrate health services with other sectors, both to gain broader community support and to create important linkages between health and food security, education, and environmental protection. The fundamentally successful CLAS experience demonstrated the essential weakness of a program limited to a single sector. The health sector must develop community-based systems and link their services with other development sectors, including local governments, if solutions are to address underlying conditions and promote healthy communities in a healthy environment. Some of these linkages were established in the 2007 CLAS law, which incorporated regional and local government representatives on the CLAS board of directors, to better align with the national policy of decentralization. When combined with the Model CLAS programs, this proved to be effective in convincing local governments to orient their budgets towards the community's health needs.

More discussions and policy decisions are needed, however, to address how the health sector can help support the wider needs of communities: perhaps by joining CLAS with programs such as income generation for women, health education for families, school and home gardens, and environmental protection in the fragile Andean and Amazonian ecosystems. Peru's tremendous cultural, economic, and physical diversity—ranging from industrialized cities along the coast; to ethnic and physical isolation in the high, dry Andes; to the lush, low ecosystems of the Amazon's tropical forests—requires decentralized decision-making to address local conditions. No centralized system can meet such varied needs. In contrast, a community-based system can self-assemble and adapt. This flexibility in community-based capacity building was a major factor in the initial rapid spread of CLAS.

CLAS began with the efforts of women in the Andean highlands to strengthen their own communities. Their vision went nationwide in less than a decade. The following period (2002 to the present) has revealed the persistence of CLAS, due to community tenacity, a new national law, Model CLAS development, and evidence-based advocacy. Peru's history of ups and downs in health-policy development indicates that for long-term, effective progress, the nation needs a steady and active base of citizen organization. CLAS committees can help engage the people of Peru in creating a more promising future.

20

Integrating Conservation with Development

Tibet, China

"It all depends on one's point of view" should be an axiom of development. Circumstances viewed as progress for some can be definitions of catastrophe for others. What constitutes positive direction differs from group to group. A major question is, whose definition is right? One of the most intriguing examples of such contrasting values has been (and remains) Tibet, which today is an autonomous region of China. For centuries, Tibet defined social progress in terms of the pursuit of spiritual values. Today, spiritual objectives are repressed and the people and leaders there seek material ends. Against that profile, though, their objective is a sustainable balance between economic prosperity and natural resources. We have followed the Tibetan case closely since 1984, setting up programs under two international nongovernmental organizations: UNICEF and, most recently, a fully local nongovernmental organization.

Until the middle of the twentieth century, the Tibetan people had no voice in shaping their own direction. Tibet's agricultural, economic, and human potentials were almost totally channeled to support thousands of highly developed monasteries, some housing more than 5,000 monks. Many families traditionally gave up one of their children to serve in a monastery. Few societies have been so focused on spiritual purposes. Paralleling this dominant religious structure was a feudal system of local lords that also levied heavy taxes and held people in servitude. Taxes by monasteries and lords often took one-third of the average farmer's crops in what is a difficult, barren land.

In 1950 the Chinese army entered Tibet, and in 1959 China took over direct control, asserting that Tibet had agreed more than two centuries earlier

to a suzerainty relationship. The new rulers deplored the absence of schools and health services, an agricultural system that used serfs, and a theocratic system of government. The new rulers ruthlessly destroyed what had gone before and imposed a new order, recasting the polity as the Tibet Autonomous Region. Thousands of religious monuments were torn down, and compulsory communal experiments resulted in famine and vast social dislocation. The Cultural Revolution that followed in the 1960s and 1970s added further to the destruction wreaked by the initial "liberation."

A new order has now begun forming from this collision of values, one that includes a different approach to preserving the environment. This approach had its genesis in the Qomolangma (Mount Everest) Nature Preserve, arguably the world's first major community-based nature preserve. Today that project, through example and training, has become a model for wider community-based development and conservation across Tibet, leading to the formation of twenty-four major preserves. The result shows the potential for people to simultaneously address economic, social, and conservation needs.[1]

In most of the world, conservation programs remove people from the places to be preserved. Development is viewed as incompatible with conservation. In Tibet, people still live on the land and use it, but the conservation effort is redefining how that land is used. This effort is directed toward ensuring the long-term well-being of people, while simultaneously protecting large ecosystems. Of equal interest, conservation is also stimulating social empowerment. Tibet has become a milieu of local entrepreneurs racing to make money, outsiders by the thousands moving in to do the same, and a continuing debate between those who seek to exploit the environment and those who advocate protection—but as this economic progress surges forward, so does conservation. Tibet is no longer a land apart from the world, but a place that mirrors the challenges of a hunger for development and the imperative for conservation. What is instructive about this case is how, by utilizing a community-based management approach each year, an independent assessment suggests that the environment is better protected and biological species are becoming more numerous.[2]

The harsh environment determines all actions in Tibet. Its climate is one of the most extreme on the planet: the air has one-third less oxygen than is available at sea level; the average temperature is 30°F (17°C), lower than that at an equivalent latitude at sea level; and annual precipitation is

frequently less than ten inches (twenty-five centimeters). In such conditions, only the hardiest trees, bushes, grasses, animals, and people can survive.

Historically, people damaged the environment as they sought to live here. Our comparisons of populated areas and protected pockets of habitat reveal that several hundred years ago, the ecology of Tibet was very different. There were forests—proven by the vestigial ones still found around ancient monasteries, such as Samye, south of Lhasa, or Reting, in central Tibet—and in sacred valleys such as Tsari, in southern Tibet. Today, though, the land is barren across Tibet, not because of climatic change, but because the land was overutilized in the centuries of Tibet's earlier feudal and monastic rule. Pollen studies also show that before that era, trees grew beside rivers, along valley bottoms, and on the slightly moist, north-facing slopes below 12,000 feet (3,600 meters) in elevation.[3] Comparisons of grass species and their variety on inaccessible cliffs also provide evidence that Tibet was formerly more richly vegetated.

This vegetation disappeared with the blossoming of Tibetan civilization in the seventeenth and eighteenth centuries. Human pressures on the land increased and changed the balance of flora and fauna. Monasteries, with their thousands of monks and nuns, demanded fuel for cooking and for warmth. Consolidation of control by the monasteries and feudal lords seemed to have brought stability, so the human population increased. As a result, trees that once grew by the rivers were cut for the many monasteries and tens of thousands of homes. Flatter lands that had better soil and richer grasses were plowed to make fields. Herds of domestic animals became more numerous, and the types of grasses decreased.

The pace of human-initiated environmental change accelerated with the construction of roads. These were gravel tracks during the 1960s and into the early 1980s, but by 2015, they had become major paved highways. Entire forests started to disappear with start of organized timber and mining operations in the 1980s. The influx of guns, which was limited to muzzleloaders until the 1960s, was augmented by the advent of the Chinese military, and then swelled by the US and Indian governments' support of Tibetan revolutionaries in the 1960s and 1970s. Large-scale killings of wild animals followed, but some species—such as snow leopards, Tibetan antelope, musk deer, and Asiatic black bears—that were once approaching extirpation now have their populations recovering.

Exploitation of the environment in Tibet parallels trends in all parts of the world. What is different in Tibet is how quickly and determinedly conservation efforts began. One reason may be sensitivity, because of their tradition of innate spiritual values; another may be that Tibetans are learning from other societies; and a third may be a strong government that can make its policies shift as it takes a longer view. For these reasons, as well as because a conservation approach was introduced that was compatible with economic advancement, the environment has benefited:

- In 1985, less than 1% of Tibet's land area was protected. By 2000, fourteen nature preserves protected 31% of the land, and by 2014, with additional preserves, over 44% of the Tibet Autonomous Region is under protected management.
- In addition to formal preserves, in the mid-1980s, reforestation started around major urban areas, then took place along the rivers, and now has extended to more than 250,000 acres of reforested land. The impact has been substantial: in the Lhasa Valley, the local government claims that these reforestation efforts have decreased the average wind speed on the ground by one kilometer (0.5 miles) per hour.
- In 1994, a Tibet-wide ban on the commercial sale of wild animal skins, horns, and body parts was followed by dramatic arrests of poachers and sellers. Since 2001, wild animals throughout much of Tibet are noticeably less fearful of humans, and population counts suggest that animal numbers have doubled. By 2014, populations of all species of wild animals were expanding, with dramatic increases for some, such as snow leopards, wild yaks, and Tibetan antelope.
- A commitment to solar energy began in 1984. By the turn of the millennium, solar cookers had penetrated to approximately one-quarter of the villages, and photovoltaic solar lighting appeared in essentially every nomad camp and monastery reading room.
- By 1990, high-wattage electricity had reached virtually all towns and many large villages, with over 90% of this electrical generation coming from hydroelectric or geothermal sources.
- Since the 1980s, simple conservation technologies (window glass, small greenhouses, outside latrines that create compost, and energy-efficient metal stoves with chimneys) have become common in nearly all homes across Tibet.

The cumulative impact of protected areas (with coverage approaching half the land in Tibet), the environment being restored on the remaining half of the land, and renewable energy technologies is that in one of the planet's most isolated and socially disrupted societies, where severe hardships are the norm and humans depend on a stark environment, conservation has now become a basis for development.

The four principles of SEED-SCALE can be seen in this context. In particular, three-way partnerships formed among communities, leaders, and experts. In the formative 1980s and 1990s, a few dedicated officials consistently worked in cooperation with an outstanding Chinese American expert, Chun-Wuei Su Chien, to set up the initial conservation design. Throughout this period, other experts gathered data, especially Chinese scientists, who could work unencumbered. Their cumulative evidence led to actions that allocated new roles for people, matching human needs with economic resources. In this extension of SEED-SCALE, the Qomolangma National Nature Preserve served as the key SCALE Squared center—it was a dramatic success in four of the poorest counties in China—that showed how behavior changes could protect the country's natural heritage and promote the quality of human life.

Qomolangma National Nature Preserve

On March 18, 1989, the government of the Tibet Autonomous Region launched an experiment across four counties around Qomolangma (the Tibetan name for Mount Everest) in setting up a nature preserve that had no wardens, but instead had the environment protected through county-based actions by the people. At the time, this preserve was the largest nature preserve in Asia, equal in size to the country of Denmark (or, in a comparison the Chinese preferred, equal in size to Taiwan). This new preserve was the world's first community-based nature preserve; the communities themselves assumed management actions. As its successes mounted, in 1994 the Chinese government elevated the park's status to a "national treasure," and it became the Qomolangma National Nature Preserve (QNNP).

The preserve is mostly high plateau, averaging 14,000 feet (4,500 meters) above sea level. Descending from that height are five deep, forested valleys, with high amounts of rainfall and a diversity of plants and animals. Now 90,000 people live in the area (in the beginning there were 65,000), at

elevations from 7,000 to 17,000 feet (2,100 to 5,100 meters). In the beginning, half the people lived below the national poverty line, and 98% were illiterate. When the preserve started, the area had one bank; now there are five. There were five schools; now there are thirty-eight. None of the water supplies for the area's 320 villages was protected; today the water supplies of 88 villages are.

One day when the preserve was just starting, a meeting was under way with villagers in the eastern part of the new park. "It's fine for you outsiders to talk about integrating conservation and development," said an elderly community representative. "Everyone wants to preserve the juniper bushes. But my family needs fuel to cook with and a fire to keep us warm, and cutting juniper is our only option." "But if you cut juniper this year, you won't have it next year," replied one of the officials. Daniel sat on the other side of the room, watching this standoff. It was not the first. We had been going from village to village, explaining the new preserve and how it would help people and protect the environment. In another village, residents had asked, why should the people stop killing snow leopards that killed their domestic sheep? Why stop killing wild asses that invaded their crops? Why should these villagers, the poorest people in China, stop cutting trees to sell to merchants from the cities who paid them hard cash?

Then an old man, dressed in simple homespun, stood up in the back of the meeting room and quietly spoke: "Perhaps we should first take care of our needs. But as we start with our needs, we should also ask, 'One hundred years from now, what will be the consequences of each action that we take today?'" Thereafter, the challenges of implementing both development and conservation were resolved by what became known as the Qomolangma question: "One hundred years from now, what will be the consequences of each action that we take today?" In extending the time horizon of development, this question engages the interdependencies of real life, in which every action has consequences, and links the environment and socioeconomic progress in a way people can understand.

In 1989, when the park was established, both the people's needs and the environmental threats seemed impossibly great. The forests around the base of Qomolangma, the Goddess Mother of All Mountains, were being ravaged, her slopes were littered with garbage from climbers who sought her conquest, and visitors were shooting the wildlife in the surrounding valleys. On our way to one early village meeting, we saw a Tibetan gazelle beside

the dirt track. The Tibetan driver turned the jeep off the road and went after the animal. At first we thought he was chasing it for fun, or even to enable Daniel to photograph it; then, before we could stop him, he pulled a pistol from under his seat and blazed away at it a couple of times out of the jeep's window.

In creating the QNNP, its planners knew that they could not afford to pay wardens from outside to control violators; nor would outsider wardens be effective in this harsh, isolated place. But local villagers were onsite, and so was the county administrative structure. So a pragmatic decision was taken: put protection into the hands of the local people. Communities would be educated and, through that, prompted to change their behaviors. The people would not be asked to leave the land (the usual approach to protection), so the land could return to a wild state; instead, they would restore the land by learning new ways of using it.

The QNNP planners also realized that because the ecology of each valley was not the same, the management of each valley must also differ. Research teams crisscrossed the four counties, collecting data on their wildlife and plants, their rates and ways of changing, how people were changing, and the imminent dangers. The preserve that was created, based on the facts that were discovered, is distinctive in its approach:

- Management uses existing systems; no separate park structure and warden force were created. Utilizing the administrations of the four counties allowed new directions in their land usage without creating a new bureaucracy. Conservation management followed existing political boundaries, and biological science fitted inside political lines. This shift reduced the costs of conservation by approximately two-thirds.
- Management followed the biosphere-reserve concept, creating a zone-based mosaic of land use. How land and wildlife are treated now depends on each locale. Eight core areas strictly preserve key habitat. In surrounding buffer zones, people can use the land, as long as natural balances are not disrupted. Towns and villages are zones of intensive human use—called development zones—where disruptive activities are permitted, so long as they do no harm to the larger environment.

- Nature conservation and development are understood as interdependent, equal priorities. Funds that would have gone to conservation administration are used to improve peoples' health, education, housing, fuel supplies, animal fodder, and the like. Park ownership of lodges provides a second stream of income. These economy-promoting policies collectively caused people to implement conservation policies.

The *pendeba* project illustrates the dual introduction of new services for the people and the means to influence conservation actions. Surveys in 1988 showed that villagers had three priorities: reliable energy sources, acute health care, and transportation services. (Outsiders had projected that their priorities would be food security and poverty alleviation—neither of which was correct.) Of these identified local priorities, primary health care offers fast results and is relatively inexpensive, so action occurred on this first. A village survey showed the needs to be treatments for diarrhea, pneumonia, cuts, and broken bones, and childbirth assistance.[4] Each of these offers a self-care opportunity; clinics, while nice, are not essential to address these conditions. So a new type of worker was created and given a name coined specifically for this new function: *pendeba* (the worker who benefits the village). Twenty-four villagers were selected to go to Shegar, the central town in the nature preserve, for three weeks of training in primary health care. They returned from Shegar to their villages with a basic drug supply, knowledge of how to use these medicines, and an understanding of preventive medicine. To pay for the care these individuals would provide, their villages established payment plans.

The *pendebas*' skills grew incrementally. Initially, they provided little more than first aid, vaccinations, and oral rehydration for diarrhea (using a homemade solution of roasted barley flour and salt). With supervision and more training, they were able to meet two-thirds of the villages' health needs. Villages where the more-competent *pendebas* worked and where a modicum of support was present (a school, a cooperative, or a government administrator) were designated as teaching villages. *Pendeba* numbers grew, from 24 in 1994, to 87 in 1997, to 234 in 1999.[5] The report from which these figures were taken estimated that by 2010, 450 *pendebas* should have been trained, with 300 serving the preserve's 320 villages. Beyond its health impact, this project had a larger result: it visibly showed people that

they could improve their lives through their actions. *Pendebas* branched out to start family hotels for tourists, open shops, extend tree planting to altitudes over 14,000 feet (4,200 meters)—previously, it had been assumed that trees would not grow above 13,500 feet (4,100 meters). Often, *pendebas* represented a village voice in dealings with the government. In 1998, the United Nations selected the *pendeba* project as one of its fifty success stories for that year. In 2014, this project received the Equator Prize, awarded by the United Nations, as "one of the twenty most successful sustainable development projects in the world."

The approach was uncomfortable to some. One venture pushed by an international agency demonstrated how the QNNP's orientation differed from conventional donor-designed development. In 1996, this major UN donor became enthusiastic and offered support, on the condition that the *pendebas* be paid salaries. The donor reasoned that since these were the poorest villages in China, it was impossible to expand to scale with the villages paying their workers. QNNP leaders resisted the idea of UN monies going to pay *pendebas* in villages where there were already established rules and workers, but they worked out a compromise: the donor would set up a parallel project in non-*pendeba* villages. The UN could pay their workers (called *mangshabas*), and the UN would set the direction for what they should do. Two years later, the number of *mangshabas* had not increased beyond the original fourteen. Each was doing what he or she was being paid to do. The donor was not in a position to increase the funding, and the villagers, who saw the services as gifts from the UN, had no incentive to figure out how to pay for the hoped-for expansion of *mangshabas*.

Elsewhere, villages with *pendebas* were expanding services, as well as their overall numbers of *pendebas*. Tree nurseries had been started in the QNNP in 1992. By 1998, they were producing thousands of seedlings. *Pendebas* now started distributing these and trained families in tree care, in the hope that households would have fast-growing willows and poplars, with leaves that would provide fodder for animals and branches that would supply fuel for human use. That year, a few *pendebas* had opened shops to sell solar cookers and metal stoves with chimneys, both of which consume less fuel than open fires on floors, and some small shops were selling window glass, to hold heat inside homes. By 2014, over 200 villages had stores. Along the roads, at many places where there were once only crossroads, an influx of shops were opened by Chinese entrepreneurs, who had greater mer-

chandising skills and better financing. These put pressure on Tibetan merchants. But a respite during winter, when many of the Chinese close their shops to return to warmer climes, has allowed the Tibetans to regain a footing, learning lessons from the competitive market. This jostling of the Chinese economy with the local one mirrors what is under way in the global economy.

To relieve pressure on ecologically fragile valleys, a multilevel resettlement program was launched. One approach had local people and the government joining forces to dig irrigation canals and build access roads. Whole valleys were thus opened to settlement. With that now-accessible land, families were offered the chance to relocate from ecologically fragile or overcrowded areas where conservation priorities sought to reestablish biological diversity.

The innovations that self-assembled to support the *pendebas* are striking. For example, one village could not afford to pay a salary to its *pendeba*, nor did the villagers have the equivalent of US$0.20 per person per year to create the insurance scheme proposed by an outside expert. So the local administrator taxed the owners of larger sheep flocks one sheep each, arguing that they could easily lose that sheep to a snow leopard. The sale of wool and offspring from this new flock supported the *pendeba*. Another administrator noticed unused land outside the village, had access to a tractor, and offered fields to the landless and use of the tractor to plow that land. When the families successfully grew crops for two years, the land became theirs. Another organized a revolving drug fund for his *pendebas*, since the drugs they were given were depleted as the *pendebas* gave them away to the most needy. Another midlevel administrator started cooperatives, as pooling resources in a co-op increased their leverage. The co-ops now sell machine-made clothes, drugs, candy, plastic jugs, and other items from the outside world. In 1997, there were four cooperatives; two years later, there were twenty; and the year after that, fifty. In a recent conversation, one *pendeba* said, "It's not the money we get that's important, but the strength we build from putting our resources together."

Successes such as these have raised expectations from the government and outside donors that village *pendebas* cannot possibly meet. They remain simple villagers who have not gone to school, but now they are asked to help with village administration and participate in making complex decisions on health, agriculture, conservation, income generation, and public

policy. Requests come to *pendebas*, who usually have only a few weeks of training (primarily in health), to build a retaining wall to stop flooding, to start a village school, to stop wild animals from invading crops, to engineer a bridge, or to solve complex health crises the *pendebas* are not trained to handle.

But what other alternatives to growing local services are there in a fast-moving society such as once-isolated Tibet? This is a world with few alternatives beyond help from the people one has. Is it not better to take the resources at hand, use them, and then start a continually growing process? Western tourists who get sick on their way to Mount Everest increasingly stop for treatment from the person the villagers call "doctor." Thrust into leadership, in some cases the *pendebas* themselves overestimate their competence and take on tasks they should let pass them by; at other times, they assume inappropriate leadership roles. There is a danger that *pendebas* may come to be seen as failures—which is very likely what Western tourists would think—because they cannot do all that is asked of them.

Yet, driven by the engaged local communities and informed by modest levels of education, the QNNP's successes have been breathtaking. Local records kept by the QNNP (and confirmed by outside spot checking) indicate that all wild animal populations have trebled (with the exception of the musk deer and black bear populations, which are slowly rising), and unlicensed deforestation—the most pressing environmental problem when the preserve was established—has been reduced to almost nil. Community capacity continues to build as village councils take on more-complex projects and mobilize internal resources.

The American Museum of Natural History in New York City selected this demonstration of what the QNNP has done as a permanent exhibit in its Hall of Biodiversity. Chinese television, international journals, and local and foreign newspapers all consistently give coverage to the hard-working *pendebas*. The awards given to the QNNP by the UN in 1996 and 2014 have been mentioned worldwide. Descriptions of progress mount, covering activities from garbage cleanup on Mount Everest to schools, health clinics, libraries, and even archaeological excavations. In the early months of the QNNP, a cynic quipped, "It will be a sensational conservation achievement if the fox can guard the henhouse." Today, villagers are succeeding because they have been enabled by a partnership: the government partner has been strong, and the experts focused on educational roles. With continuing

support, villagers can expand these activities. The greatest success of the QNNP is not that the fox is indeed guarding the henhouse, but that a three-way partnership is building a new house, one that works there and is a demonstration for all of Tibet.

Conservation Extension across Tibet

Protecting Mount Everest set a conservation example in place for Tibet. *Conservation* implies a different way of responding to and with the world than *economic development*. Ultimately, all life on Earth must adopt a conservation approach if economic progress is to be maintained. The highest place on Earth was the beginning of Tibet's conservation saga and, perhaps, its sustainable development.

1. While the QNNP was being launched, across those same years laws were enacted to protect wild animals throughout the Tibet Autonomous Region. Unlike the traditional approach, which bans any killing of endangered animals, the Tibetan solution to protect its wild animals was that prosecution would occur only when the pelts, horns, or other parts of a wild species were offered for sale. People were not prosecuted if they killed a snow leopard that had slaughtered domestic sheep, or a wild ass that had invaded their fields, but they were prosecuted whenever they tried to sell products from wild animals. As a result, by 2007, the population numbers of every species of wild animal across Tibet were increasing.[6] Species in this region of China may still be endangered, but their populations are rising.

2. In addition to Mount Everest, other areas also needed protection. The most critical was the heavily forested region along Tibet's southern and eastern borders, where an ecosystem collapse was under way in the 1990s.[7] The upper drainages of the Yangtze, Mekong, Salween, and Brahmaputra Rivers contain one-seventh of China's timber reserves. Valley after valley has spectacular pristine forests, with trees regularly being four to five feet (1.5 meters) in diameter. Timber harvesting had begun in the 1960s, when roads were built into this area from China, and it ratcheted up in 1990s, as China's economic growth accelerated. By the mid-1990s, whole mountainsides of trees were being removed, with the clearcutting at times extending 6,500 vertical feet (2,000 meters). On days when the fragile roads were not closed by landslides or winter weather, our records show that an average of 200 truckloads of cut timber

left for Sichuan and Yunnan to the east, and on some days another 100 trucks, starting from the western edge of the area, embarked on a circuitous northern journey.

Whole valleys were being cleared, and continued tree cutting would lead to massive soil losses during the rains, as well as landslides. With the flora being disrupted, the megadiversity of the fauna would decline. This biodiversity is the second greatest in mainland Asia, with 8,000 species of vascular plants, 600 species of birds, and 150 species of mammals. Destroying the watershed would immediately affect the livelihoods of the 800,000 people living there, one-quarter of Tibet's population. But damage was also showing up downstream of these four watersheds, inhabited by 1.2 billion people (totaling 16% of the world's population) in eight countries. Fluctuating water levels would impact irrigation to the paddies supporting their rice-based diet, as well as disrupt river transport, fisheries, and hydroelectric generation. Flooding is an age-old scourge in China, which would increase, along with siltation. Of particular concern was the effect on China's largest development project, the Three Gorges Dam on the Yangtze River.

Because the four valley systems span two prefectures in Tibet, conservation solutions would have to cross prefecture lines; the county-by-county model of the QNNP would not directly transfer to this situation. Travel between prefecture centers took five days then, a problem now simplified by new roads, shorting the time to two days. But creating these roads has been an engineering challenge, because no place on Earth has land that is so fractured. These four valleys are among the deepest, steepest, and geologically most unstable on the planet. And building roads is just the beginning, as the yearly monsoons cause landslides, which regularly break up the roads in dozens of places. The area is also politically sensitive, forming international borders between China, Myanmar, and India.

The resulting plan created a mosaic of eleven protected areas within an overall land-management plan. The QNNP experience had shown that local administrators resisted plans designed by outsiders, as these local personnel resented being told what they must do. So a six-year training program was launched for them, as well as training being provided for local foresters and scientists, so they could learn skills and see examples of community-based conservation at sites around the world. As the locals were being trained, expert teams gathered data for the master plan,

conducting valley-by-valley surveys. The *pendeba* project provided a model for community-based services.

Forest management was key to the project. Given China's need for timber and the huge revenues being garnered, harvesting had to continue, but the clearcutting of slopes had to be replaced by sustained forest management. Major floods along the Yangtze River during the summer of 1998 provided the opportunity to influence forest-management policies. The flooding took thousands of lives and threatened millions more.[8] It washed out roads and towns and heightened awareness of threats to the Three Gorges Dam downstream. Compromises on timber cutting had been planned, but the threat to China's premier development project minimized the amount of compromise needed (accentuated by some carefully targeted, anonymous media reports) and stimulated political action to stop all timber cutting in the Four Great Rivers region. In November 2000, after five years of planning, data gathering, and widespread community dialogue, a master plan was presented to the government. Intensive polishing followed through early 2001, and the final plan was submitted to the government that May. That was followed by China's fifth five-year plan, which allocated US$40 million to implement the proposals.

3. Four years after the QNNP started, another nature preserve took form in northern Tibet, the 120,000-square-mile Changtang Nature Preserve. Vast herds of gazelles, antelope, wild asses, wild yaks, and other animals roam across an area the size of West Germany, made up of rolling grasslands at altitudes averaging 16,000 feet (4,800 meters). The high altitude and low amounts of precipitation create a very fragile habitat. Despite the region's isolation, poaching had increased during the 1980s, which particularly threatened Tibetan antelope. Well-armed, mobile hunters were killing thousands of these fleet-footed animals, whose fine *shatoosh* (belly fur) was woven into shawls selling for US$5,000 each.

As the nature preserve was being formed, checkpoints encircling the region were established to catch the outflow of *shatoosh* fur; at the same time, a worldwide educational effort cautioned people against purchasing shawls made from this fur. Using wardens in vehicles to police this vast area and find poachers was excessively expensive. So, drawing on the community-based approach from the QNNP, local nomads were mobilized through an offer of health and economic services, which opened a means to identify the poachers, who were then caught at the checkpoints.

4. A different application of community-based conservation was taking shape in Tibet's rapidly growing capital city, Lhasa. There, a large wetland was being encroached on by the expanding city. Half of the wetland area had disappeared in the period from 1975, when urban growth had started up, to 1995, when the threat of wetland loss was identified. But 1,500 acres (625 hectares) of wetlands still remained. In arid Tibet, such green space is a stunning ornament. Discussions with the government began as commercial interests were viewing this "empty" land for the city's expansion. But in 1999 the government—building on the momentum of a Tibet-wide conservation consciousness being fostered by intentional international action during the same period, as well as on the deep-seated values in Tibetan culture toward the protection of nature—set aside this wetland remnant, creating Asia's largest urban park on land immediately adjacent to the Potala Palace of the Dalai Lama. Draining water from the wetlands was stopped. Grazing animals were prohibited, and the vegetable-growing squatters were expelled. But forceful action was not a long-term solution.

A change in mindset was needed, but it had to be one that engaged the community. Thus parts of the wetlands were developed as places where community members could have picnics. Trees were planted for shade, and picnic and party pavilions were constructed. Citizens could retreat from elsewhere in the city and be inside these protected natural areas. A parallel project created educational exhibits in the preserve, with walkways citizens could follow among the marshlands. A special focus set up programs for schoolchildren, with the thought that by educating them, learning would flow back to their families.

As part of the process in mobilizing political support to establish the preserve and prevent commercial development there, a decision was made to construct roads along the outermost limits of the wetland. The roads were a type of economic development, but they also formed a barrier—with the city on one side, and the preserve on the other. This also allowed people to look at the wetland area as they traveled past and, as they did so, to monitor activity there, since at first, many former herders were slipping their cows back onto the land. The road formed a fence for the preserve, a fence that, rather than extending up and blocking sightlines, was horizontal to the ground, affording both visual enjoyment and protection.

Today, twenty-four nature preserves exist across the Tibet Autonomous Region, and 44% of the land area is protected. By and large, all these preserves are managed by local communities, and wardens perform only in a few special tasks. A key factor underlies the change in perspective for all this: people are seen as allies and actors, not invaders and exploiters. Perhaps they had been destroying wildlife and forests, but, to turn their actions, policies and education focused on bringing them beneficial services, coupled with restrictive consequences.

As a result, Tibet presents a dramatic example of affordable, very large-scale, community-based conservation. It differs from traditional approaches that assume people should not live inside the protected area and focus policies on law enforcement. In the Tibetan efforts to address peoples' needs, a diversity of factors converged: values in their culture that respected the environment; recognition of accelerating environmental destruction, established with evidence; a political structure that could foster action and control; and timing, since the administration in the Tibet Autonomous Region was open to progressive ideas in the 1980s and 1990s. This approach has an analog in that used in the Adirondack State Park (chapter 9).

21

Going to Scale with Health Care

China's Model Counties

Carl E. Taylor, Robert Parker, and
Zeng DongLu

From 1980 to 1995, a maternal and child health initiative in China expanded from 4 million people in 10 counties to more than 160 million people in 400 counties, reaching every province of the country. Together, China's Ministry of Public Health, UNICEF, and the communities used components of the SEED-SCALE process to extend this initiative to national scale in the world's most populous country, a project whose distinctive feature was that it was adapted to local conditions.

In 1949, China's new Communist regime, building on its liberation experience, which shaped so much of its philosophy, and on the Ding Xian Experiment (chapter 7), launched health services that dramatically reduced disease and death in that country. A new national health model was implemented—and it cost very little money. National-scale health actions can occur and not be hugely expensive, a lesson that countries around the world are ignoring as they fall increasingly under the sway of the health business.

By the 1960s, "barefoot doctors" (a name meant to show solidarity with the poor, not a lack of shoes) provided primary health care for most villages in the country. Those communal health cooperatives became famous as one of the world's most equitable health-care systems. In about two decades, 22% of the world's population achieved a high level of general coverage and a quality of care that produced excellent health benefits at a fraction of the cost of services in developed countries.[1]

But the system collapsed during the 1980s, when communes were dissolved and land was returned to families as part of new economic reforms. The work-point system that had provided payment for the barefoot doctors

was eliminated, along with the health cooperatives that had managed the health system. (Work points, a currency of human energy, is a concept that needs further study for other applications promoting human-energy-driven change) Across China, this letting go of what some considered nonmodern medicine and the adoption of monetary payments caused inequities and discrimination to increase, since women, children, and the poor now had more trouble getting access to adequate care with the new currency of health care. A singleminded focus on economic growth (much desired and much needed in China) shifted priorities away from supporting social services that arguably had positioned China with adequate levels of health and education, so its economy could take off.

On the face of it, China offers a choice between paying for services with human energy (work points) and paying with money. SEED-SCALE advocates developing the human energy currency, but it is not arguing against the monetary one. When both forms of payment are used, lives are wealthier; this case study is one example of how it can happen. (It also shows how a model that allowed both forms of payment ultimately lost out against the momentum of the health business.)

In 1980, Madame Lin JiaMei (the head of the Maternal and Child Health Bureau in the Ministry of Public Health and the wife of the president of China) organized a project to address the nation's health-care crisis by seeking local solutions and developing local funding. Using an early version of the scaling-up concepts outlined in this book, over a period of one and a half decades, the program evolved and expanded through local innovations and permeated the national health system.

The Initial Ten-County Project

We started with ten model counties, one in every region of the country. A team from the central Maternal and Child Health Bureau (later elevated to the Maternal and Child Health Department) and one of us conducted weeklong workshops to plan priority maternal and child health services in each county. Attending the workshops were 60–100 community and county representatives, health officials from Beijing and each of those provinces, and faculty from the departments of maternal and child health, pediatrics, and obstetrics at regional medical and public-health schools.

After these meetings, detailed household surveys were organized in each county, to determine local needs. Six health-care priorities emerged:

pneumonia, diarrhea, faltering growth as a result of protein-energy malnutrition, micronutrient deficiency, immunizable diseases, and perinatal deaths associated with pregnancy and delivery. Each county worked out one- and five-year plans to change how services were organized, provided, and funded. For each of the six priorities, Chinese and international experiences were integrated, to focus on activities that upgraded barefoot doctors could implement.

Early on, experts and officials learned the importance of greatly simplifying community-level solutions. For example, in one workshop, a group of professors of obstetrics and female former barefoot doctors (who were being retrained as maternal and child health village doctors for this project) were seeking to define indicators for when prenatal care was needed, in order to identify high-risk mothers. The professors so dominated the early discussions that the village doctors were moved to another room. A short time later, the coordinating committee walked into that room and found the village doctors in a vehement argument: some were punching with their fists, while the others were waving their arms in large circles. The first group was insisting that the correct way of measuring pelvic size (to predict obstruction at the time of delivery) was to push a clenched fist into the area between the pelvic bones where the baby would come out. The others wanted to use a simple tape to measure the circumference of the pregnant woman's body at the upper pelvis. With the choice narrowed to these alternatives, the professors were brought back in. They agreed that both indicators could be used together, more quickly and more easily producing results than the sophisticated methods they had been recommending in their group.

At that time, the main cause of death in all villages in China was neonatal and infant pneumonia, responsible for between one-quarter and one-third of those deaths in various parts of the country. Academic centers conducted field trials in six counties and found that the high rate of pneumonia mortality in infants could be brought down by adapting the World Health Organization's case-management approach, first reported from Narangwal, India (chapter 12). Tests confirmed that in the Chinese context, case management, based on a diagnosis by directly counting rapid respirations and prompt treatment with antibiotics, worked well. It proved very difficult, however, to change the ancient and common practice of tight swaddling, which prevented babies from doing the deep breathing and crying needed to open up their lungs; by restricting respiratory func-

tions, this practice contributed to the development of pneumonia.[2] The problem needed more than a technical intervention. We made some headway in changing this deeply ingrained practice by offering mothers a practical and convenient substitute: zippered sleeping sacks that simplified changing diapers.

Diarrhea was the second-most common problem. Morbidity rates for children under age one were equivalent to the high levels in Bangladesh, but deaths from dehydration were only one-sixth of the Bangladesh rates. An ethnographic study revealed that health workers and mothers would willingly modify the traditional method of oral rehydration, using diluted rice porridge or liquid herbal medicines. Care improved by mixing a small amount of salt in diluted rice porridge.[3] The longer-term prevention of diarrhea through sanitation was accepted less rapidly, and, given the worldwide surge in a near-magical belief in antibiotics, it has also been difficult to prevent health workers from treating diarrhea with antibiotics.[4]

Another major issue, growth retardation among infants in southern China, was found to be associated with the widespread use of rice porridge—mainly starch and a large amount of water—as the main weaning food. Research in Guangzhou indicated that it would take eighteen bowls of rice porridge a day to meet the energy requirements of an eight-month-old child, and forty bowls to provide minimal protein requirements. But lab trials showed that adding calories—in the form of oils and a protein source (fish powder, eggs, peanuts, or soybeans)—could convert rice porridge into an excellent weaning food. Cost-effective methods were developed to address the other significant health priorities: introducing iodized salt to prevent mental retardation and cretinism in mountain areas, expanding immunization among poor communities, and reducing perinatal mortality.

Each county evolved its own financing methods, and this was perhaps the most unexpected feature of a system that might otherwise be presumed to have top-down funding, since the wife of China's president was the national leader and a major UN agency was the principal funder. This bears out what SEED-SCALE applications have consistently found: when projects are underfunded but have clear beneficial actions that people can take, these people often work out their own funding options to extend the desired services.

A 1985 study to improve local financing found that a marked difference in immunization rates was directly related to the economic status of

counties. The Ministry of Public Health advised counties to have families pay village doctors ten fen (about US$0.03) for each immunization. Poor counties had set the rate at five fen to make immunizations affordable, yet these counties still had poor coverage. In rich counties, families were paying forty fen, and coverage was almost complete. Then one county tried a different approach, one that addressed the concerns of parents, rather than the government's interest in recovering costs, and the innovation spread spontaneously to most of the other counties. Each family with a new baby signed a contract with the health system, and for ten yuan (about US$3 at that time), the baby received all immunizations. The contract specified that if the baby developed any of the six immunizable diseases, all medical care would be free, and the health system would pay the family an indemnity of 100 yuan or more, depending on the disease. The indemnity provision convinced families that this was a good deal and that immunizations could be trusted.

Scaling Up

Over thirteen subsequent years, the project moved from ten pilot counties with a high per-capita cost to implementation in 400 counties with much lower per-capita costs. Scaling up occurred in the following stages:

- *Stage 1*. In 1982, ten counties were covered, with an average annual allocation per county of US$250,000 in outside funds. Much of this funding supported local research. A focus on the major health problems of children significantly reduced disease and death.
- *Stage 2*. In 1984, twenty more counties were added, with an average annual allocation per county of US$200,000 in outside funds. The impact in these counties was equivalent to that in the original ten.
- *Stage 3*. In 1986, sixty-five more counties were added, with an average annual allocation per county of US$100,000. Both the impact and the level of support from officials and experts were smaller, and implementation was considerably slower and less effective.
- *Stage 4*. In 1988, 300 of the poorest counties were added, with an average annual allocation per county of US$70,000. The emphasis shifted to systematically training staff in how to use the interventions, drawing on the experiences in the first two sets of counties.

We also focused on stronger management and evolved a useful tool: at a special conference in Xian, contracts were signed between the counties and the government, stating the expectations for all partners. We soon incorporated this contractual concept into every county's annual workplan. These changes produced improvements in mortality rates and the quality of care, and project innovations began spreading to non-project counties.

- *Stage 5*. In 1993, five more counties were added, where our action focused on integrating family planning with maternal and child health services.
- *Stage 6*. To help additional poor counties and those with high mortality rates, a World Bank loan to the Ministry of Health in 1995 supported an extension of maternal and child health services in selected poor provinces, with an emphasis on training and management.

National Policy Framework and External Funding

Rapid extension occurred, thanks to clear, consistent, top-down policy. At the start of China's economic reforms in 1980, the director of planning in the Ministry of Public Health told us, "The new policy is that in Beijing we decide what will be done, but local units will decide how they will do it." (This is a good definition of the difference between how to implement strategy and tactics.) Throughout the project, county officials were encouraged to adapt and to give autonomy to community-based programs.

As decentralization proceeded, local units gained confidence and took more of an initiative in implementation and local problem solving. At first, local decision makers used UNICEF funds, chiefly to purchase sophisticated equipment from outside the country. As the project matured, county governments began using donor funds to purchase locally produced equipment and supplies, and allocated their own funds to improve staffing at township and village levels.

Mobilizing Province, Prefecture, and County Support for Change

In the first ten counties, social mobilization depended mostly on the interaction of national and international maternal and child health experts with local officials and community representatives. County personnel joined with community staff to run services in experimental townships and

develop local adaptations. Community representatives suggested many of the best adaptations. Once a new, comprehensive approach had been developed, the experimental townships served as training sites for workers from other townships (a SCALE Squared extension).

In the second and third stages of expansion, national maternal and child health officials worked directly with county and township leaders. The involvement of international advice was less, with ideas and evidence emerging locally. Direct replication worked well in the first twenty counties, but in the next sixty-five, the contributions of national and provincial staff were greatly diluted. Little effort was devoted to training—the mistaken thought had been that extension would follow from proven models. This experience made clear the need for more cost-effective training methods and better management of innovations—and for local ownership, rather than simple extensions.

Planning for the project's extension to 300 counties led to the development of a new strategy for mobilizing and managing sustained expansion. Dr. Wang Fenglan, director of the Maternal and Child Health Department, had observed the success of community-level negotiations ten years earlier, when commune land had been returned to individual households and contracts between families and local authorities had redefined their respective obligations. In 1989, the Maternal and Child Health Department convened a major meeting in the city of Xian, attended by county governors and health officials from the 300 counties and by provincial government and health officials. The leaders who attended were politicians, and the political focus in China had grown by then to its present emphasis on making money. This meeting proved to be an exceptional opportunity to show the relationship between good health and a prospering economy. When the provincial leaders understood this relationship, it was possible to set up the aforementioned contract system in which the leaders made commitments.

Contracts are a powerful way of handing authority to communities for implementation, yet holding on to accountability in delivering results, an important paperwork item for balancing responsibilities among all three SEED-SCALE partners (chapter 5). Contracts are customarily viewed solely as financial documents, but use of their core concept—written mutual obligations—very effectively achieves the objective of promoting both human energy and monetary collaboration.

In the intensive negotiations among county, provincial, and national levels of government, the concept of contracts was proven time and again as a particularly useful tool to keep the partnership in balance. Discussions went late into the night as leaders from some of the poorest counties and provinces struggled with decisions about how much money they could commit to solving their own health problems. Contracts allowed for both localization and national policy. Eventually most counties, prefectures, and provinces committed at least three yuan for every one earmarked by national and international sources. The most promising outcomes were the participants' recognition of the long-term implications of the contractual commitments, and their decision to include maternal and child health for the first time in many county and provincial five-year health plans.

Mobilization of government leadership did not stop with the Xian meeting. In 1992, the Maternal and Child Health Department organized an interregional program in which county leaders traveled to other counties to assess each other's progress in meeting the Xian commitments. Selected county and provincial government leaders participated with health professionals in management training and study tours, where they observed successful county efforts with maternal and child health problems, such as the supervision of village doctors and the promotion of oral rehydration therapy. In 1994, the Maternal and Child Health Department expanded social mobilization efforts by encouraging prefecture leaders to establish and supervise training activities in still more counties.

Key Components in Going to Scale

1. *Action learning.* Training for community health workers became increasingly experience based and participatory as they practiced technical skills and learned new ways of communicating with local people. At the 300-county stage, the project invested heavily in building capacity at all levels by introducing new techniques for encouraging participation, such as intervention modules and role playing. A village midwife from rural Xinjiang Province, when asked about the new training methods, told evaluators: "Before, the teacher never knew who was sleeping or who was learning or who was writing in the notebooks. All the teaching, all the notes we took were just for the exam. This time we didn't have notes, but we could understand. This new method is good for us. The role

playing—we laugh a lot, but we learn, too. We get drawn into it in spite of ourselves. You can't help yourself, you just get drawn in."

The Maternal and Child Health Department evaluated the training continuously. When the grassroots workers needed more skills, their next training sessions included supervised practice of those skills. Training also focused on communication as well as on counseling. Project research revealed that many women and children lacked access to maternal and child health services and needed to learn self-care. Workers learned how to counsel clients about ways to improve health practices, such as managing diarrhea treatments at home, and knowing when a sick child or a woman with a high-risk pregnancy should be brought to a hospital.

2. *Priority interventions*. Each region focused on cost-effective solutions for its priority health problems. Decisions as to what these were came from surveys, practical experience, and national research. Six packages of interventions for these priority problems were developed nationally, with the option to include additional local concerns. Standard modules and manuals were prepared for village and township health staff.

In 1993, five new counties focused on improving the quality of reproductive-health services by integrating family planning and maternal and child health activities. The project tested low-cost interventions for childhood nutrition, maternal mortality, childhood accidents, and injury from the cold. Follow-up projects supported by the Ford Foundation and the UN Fund for Population Activities promoted an integration of services as China began moving away from a rigid implementation of its one-child policy.

3. *Exponential extension*. By 1995, the Model Counties project was reaching 160 million people distributed in every province, including half of the poorest counties in China. It had become large enough to generate a nationwide movement toward use of its simplified interventions, training approaches, printed materials, and supervision methods in every county in China. Many provinces deliberately selected at least one county per prefecture as a training center (SCALE Squared), so that in their provinces, project innovations and capacity building could reach large numbers of health-care staff. The capacity of all provincial training and health-education staff members was substantially upgraded, and the national government announced its intention of extending participatory training methods to at least one-third of non-project counties in every province.

Institutionalizing Innovations

1. *Reconfiguration of roles into a three-way partnership*. The key to continuing developments in the provision of routine maternal and child health services was to combine bottom-up and top-down approaches and, through that, to institutionalize the new practices and values. Provincial and local leaders and health-care staff had to learn new roles in order to take ownership. A cascade strategy extended training: national and regional experts trained provincial trainers, who trained county-level trainers, who then trained the grassroots workers. A slippage in quality was more than offset by the participation of an ever-greater mass of trainers at each level, so the learning impact was always more significant than the learning loss. First, training materials were developed, with guidance from international specialists. In 1993, Chinese master-trainers independently created the third set of materials and a complete set of manuals that included audiovisual aids. They then organized training-of-trainers workshops for the whole country and used their new skills to plan and implement other health projects.

2. *Evidence-driven decision-making*. Evaluation activities helped foster a culture of learning from experience. Outside evaluation was used to validate local self-evaluation. For the first ten counties, six of China's best medical universities did the field research to test interventions and adapt them to Chinese conditions. They also guided implementation in the counties. For the 300-county expansion, Shanghai Medical University had an external evaluation team monitor new implementations by gathering precise quantitative data about the training and its results. They also conducted surveys on knowledge, attitudes, and practices, as well as quality-of-care studies to track improvements, identify gaps, and help in reprogramming project activities. An evaluation survey in 1994 found statistically significant improvements in infant, child, and maternal rates of mortality over the findings of the 1989 baseline survey.

3. *Financing and role reallocation*. Alternative approaches to financing health care were needed, especially for the curative services that people were usually willing to pay for. The earlier barefoot doctors had stopped working when their funding (through work-points) was terminated. Officials knew that China was too diverse to permit implementation of a single model of self-financing. Some counties pursued strong control by county authorities; others decentralized decision-making, shifting it to

the townships and villages. In most counties, curative care permitted a fees-for-service private practice by village doctors and referral hospitals. Some affluent and well-organized counties retained health cooperatives, using mixed patterns of local insurance. Other counties used money from county business enterprises to fund essential services for education and health. Preventive services also had varied sources of financing. In some poorer counties, in exchange for the privilege of having a private practice, village doctors were expected to provide preventive services for their needy neighbors with little reimbursement, while in other, more affluent counties, they were paid well. The diversity of field trials spawned vast experimentation. As counties exchanged information on their methods and results, the most effective were commonly adopted. Sharing experiences is essential for quantitative scaling up to also be qualitative improvement.

Emerging Problems in the Poorest Parts of China

Large regional differences in economic status have recently created major problems for the country, both in poor areas and for poor people in all areas across China. As the Ministry of Health continues to experiment with financing arrangements—including different kinds of cooperatives, dedicated taxes, a variety of insurance schemes, and projects to link improved health and economic development—the problems of rural health financing, the nationwide trend toward privatization, and growing inequities in services are creating a rapid decline in the coverage and quality of care for the poor.[5]

In 2006, on a visit to poor villages in a northwestern province, we found that the quality of care is worsening in the poorer half of China. Where economic conditions are rapidly improving in locales where the programs described in this chapter are functioning, these programs seem to be having a continuing positive impact. In the poorest counties, however, local health units tend to overuse medicines and injectables, pocketing payments for them to augment their low salaries. Another growing problem is the reuse of inadequately sterilized equipment, a practice that increases the potential transmission of viruses, such as hepatitis B and C and HIV/AIDS. This problem illustrates the importance of ongoing national surveillance. Without outside supervision, community-run health programs may not identify such dangers or mobilize a response. This is especially true if commer-

cial interests are concurrently promoting practices (such as the excessive use of drugs) that may be exacerbating the problem. The overutilization of hospitals for routine care, and the growing practice of these institutions in charging uncontrolled fees for services, are propelling people to increasingly use pharmacies as their first health-care stop—and the interest of pharmacies is in selling their most expensive, fast-acting medicines. China, once a country at the leading edge of effective national health care, now is slipping into the global morass of expensive sickness services.

Lessons from the Model Counties Project

Health systems around the world can learn much from what this large, once-poor, and densely populated country accomplished in its thirteen-year transition (1982–1995) from a communal structure to family-based decision-making. In this period, China had an effective, nationally extended, balanced, working health-care model, one that had taken the great community-based strengths of the barefoot-doctor approach and had successfully merged that with scientific medicine. Working in balanced partnerships, communities, officials, and experts used bottom-up, top-down, and outside-in methods for scaling up. At the beginning of this effort, officials went as a group to each of the early experimental counties for an intense dialogue with local people. This approach stimulated surprise, and then enthusiasm, as people gained a sense of control through shared participation and shared commitments in the form of contracts. Coverage reached one-quarter of the population of the most populous country on Earth.

The Maternal and Child Health Department's heavy investment in educating and mobilizing government leaders at all levels paid off in the leaders' continuing support for maternal and child care. This priority, in turn, motivated field staff. As academic experts shared control with local people, they began to see the difference in usefulness between solutions based on scientific theory alone and solutions that were both practical and economically feasible. Village people learned much by being able to ask on-site experts practical questions, but they also realized that they had much wisdom to share with the experts. Although China's efforts to equitably improve the health of women and children still face major challenges, the Model Counties project shows the potential of the SCALE approach to support rapid and effective implementation through sustained modifications in programs.

But there is a larger lesson, as well. China, like almost all countries, has a growing inequity of delivery and expanding sources of illness. Health is primarily a function of how people live when they are not sick—but by now viewing health as care for sickness, and then providing that care in inequitable ways, resident strains of infection increase in a country's own communities. Not only infection, but depressed populations and mental illness grow at even faster rates. Health is a feature of an effective socio-econo-biosphere. A rising quality of care that does not reach everyone and does not start with healthy behaviors now undermines the health of all in almost all countries.

22

A University's Actions in Apartheid South Africa

Brenda M. Gourley

At certain times in the process of social change, individuals are called on to stand up against the top-down. This book has frequently spoken of using the top-down as an enabling environment—but what should be done when the top must be turned around? Such was the need with apartheid South Africa. Here, the then vice-chancellor of the University of Natal shows how she and her colleagues, and their predecessors, used the protection of the university to gather scattered groups together for safety, so they could learn from each other and, in their differing ways, influence the repressive top-down.

The apartheid era in South Africa was an extraordinary time that, among many other things, tested the higher education sector's commitment to civic engagement. At the University of Natal (now KwaZulu-Natal), we were able to give unprecedented support to a variety of community organizations and their causes. In offering that support, we could not have guessed the extent to which it would benefit us as a university, or the students' education. In the process of keeping people of different races apart in so-called separate development, the apartheid system had built structures, passed legislation, and rigorously repressed dissent (from institutions such as universities or from individuals) to enforce that separation. Detention for 180 days without trial was legalized, and numerous people died during those 180 days as a result of police brutality. Many others simply disappeared. The Truth and Reconciliation Commission, which held its hearings from 1996 to 1998, once freedom had finally been won, exposed crimes of such magnitude that the fact that South Africa did not descend into all-out civil war was heralded by many as a miracle.

Separate development determined that even universities had to be reserved—and, in many cases, specially built—for separate racial groups. The University of Natal was officially for white people, but it was unusual in having a black medical school, which was originally planned as a medical school for all the people of what was then the province of Natal. When the Nationalist government came to power in 1948, and the medical school was nearing completion, the government insisted, by way of a forewarning of the fully fledged apartheid to come, that the university must choose: the medical school students had to be either white or black and could not be mixed. The university, to its credit, chose black, and for many years it operated the only medical school in the entire country where people not racially classified as white could qualify to become doctors. This medical school, to which Nelson Mandela subsequently lent his name, was on a separate campus, adjacent to a (badly funded) hospital that was reserved, in apartheid terminology, for "non-Europeans." Managing the medical school did, however, ensure that the university's administration remained acutely aware of the realities of the day-to-day lives of its black students. Unsurprisingly, the medical school was a hotbed of anti-apartheid activism, with police raids in the middle of the night on the student residences being frequent, regular events. Those sought by the security police frequently received tipoffs and fled at very short notice.

Despite the country's toxic policies and the atmosphere of fear their enforcement created, a large number of people of all races were engaged in various forms of activism. Nongovernmental organizations (NGOs) were established to address various concerns, not the least of which was to ameliorate conditions under which people had to live. A good proportion of these organizations received funding from outside the country, and some were founded by members of the university's staff seeking to alleviate government oppression as well as to defy that oppression. In so doing, they were intent on fulfilling the explicit community-service and civil-engagement dimensions of the university's mission. This commitment was so demanding that in some cases, the academic founder of the NGO had to choose whether to remain a member of the university's academic staff (with the inevitable duties that entailed) or run the NGO on full-time basis. Some chose the latter. They were remarkable people who sacrificed much to a greater cause. One was assassinated.

Some of the NGOs were plagued by mysterious fires, and there were many incidents of harassment. Certain academics, encouraged by the university, found ways of combining their community activities with extensions to the curriculum that required community service. Some even devised academic programs that equipped students for careers in the NGO sector. The social science faculty took the bold decision to include "community development" as part of its name. Inevitably, many found themselves as the subjects of threatening attention from government agencies. This was where the university's commitment to its community (and its stated mission) was truly tested.

As matters went forward, difficulties increased. Unless some answer was to be found to avoid the problems, the government would not hesitate to close these organizations and prosecute their staff. It was already making their lives (and those of their families) extremely unpleasant. As the dangers grew, an idea was advanced: if those organizations were integrated into the university, might that give the government pause? Would the government directly confront the university establishment and all its supporters? Would they take on a well-regarded, well-run university? Given that some of these NGOs were funded by international money, would the government risk the adverse publicity (both national and international) that would surely follow?

A decision was made to test that proposition. Slowly, one after the other, a portion of these NGOs found premises on the University of Natal's campuses, their staff members were put on the university payroll, and their basic administrative functions were taken over by the university, functions that had to be put in place to make the exercise credible. By the late 1980s, eighty-four different NGOs, some large and some small, had been given sanctuary. And the word "sanctuary" is used advisedly. These were individuals and organizations seeking refuge from the apartheid regime. Coming under the umbrella of the university meant that they could continue to function. As hoped, the government did not act; though harassment of individuals continued, none of the NGOs were closed down.

For the university, much was at stake. The regime was ruthless—no one was under any illusion about that. It seemed entirely possible that a time would come when the government would conclude that South Africa had lived with so much international opprobrium for so long that it could

survive a bit more. If the government didn't simply close the university, another option was that the university could be starved of funds to such an extent that it would become a shadow of its former self, jeopardizing not only its teaching and research function, and the jobs of its staff, but also the lives and potential of thousands of present and future students. The university had already courted government disfavor: it was too liberal (though the judgment of history would be that it was not liberal enough) and it was too outspoken (yet not outspoken enough in so many ways). The university trod a line between defiance and caution. Was the survival of the NGOs worth the risk? That question was somewhat ingenuous. In fact, it was our values that needed to stand the test. We needed to model the behavior we sought to instill in our students. Whatever we did was not going to be enough when it came to bringing an end to apartheid, or even ameliorating the suffering of apartheid's victims in a lasting way—it was a tightrope we walked, and somehow we kept our balance.

Anyone familiar with university administration knows that it involves an unending juggling of resources. Not the least of those resources is space: the allocation of physical premises. Few universities are endowed with significant amounts of unused space. The conjured-up space for eighty-four new departments was less than luxurious: some consisted of prefabricated accommodations; most were cramped; none were ideal. Endless contestation meant that hardly anybody was satisfied, but being on the university payroll meant that the staff of the NGOs had to be employed on the same terms and conditions as other staff.

One significant difficulty was that NGO funding doesn't come in regularly. Project proposals take time to prepare, to be evaluated, and (possibly) to be approved. The university frequently had to provide bridging funds, trusting the hoped-for monies would arrive. On one infamous occasion it did not, despite the letters of assurance on which I, as vice-chancellor, had relied. The governing board of the university was not pleased, but it acknowledged that I had not taken an unreasonable risk. NGOs, which came to number roughly half the departments in the university, didn't fit comfortably into conventional departmental or faculty structures and couldn't easily be managed by the university divisions. Many of their issues were handled at the executive level, a situation that was hardly ideal.

But the rewards were larger than we could have imagined. The first benefit of having these units, and the remarkable people who ran them,

was a strategic one. They played a vital role in the formulation of the agenda on campus, not just by their presence, but also by improving the quality of the decision-making conversations. As I've said elsewhere:

> Their perspectives were different. They provided marvelous case material and they were living examples of strategic alliances and partnerships. They made it absolutely clear that a transformatory role was required of the university, that it needed to play a role in nation building (after the country's long and divisive struggle for freedom) and that modelling a democratic culture was important. The exercise provided a powerful learning experience. While only the extraordinary pressures of the time made their presence on campus necessary, it is necessary that even in ordinary times ways are found to improve the strategic conversation on campus and ensure that in the process local concerns are catered for, or at least heard, and local, national, and international perspectives about the university and what it does are well informed.[1]

When the university went through the process of formulating its mission statement and strategic priorities towards the end of the 1980s, the result was in part a testimony to the influence of these NGOs. Many academics were connecting across all sections of society. In a profoundly nondemocratic environment, the university was modeling a democratic culture, where as many opinions and points of view as possible were factored into the university's articulation of its purposes. There was nothing token about this exercise. The draft of the mission and strategy statement underwent sixty-seven iterations before it was formally approved by all the relevant bodies—an extremely arduous and trying process, but the priorities that were identified stood for where the university sought to go. The importance attached to strategic engagement with the communities the university served was so much an aspect of university culture that presentations and discussions with many community groups and their leaders were included as part of the preparation of the university's strategic priorities well into the post-apartheid period.

The second benefit came via influences on the curriculum. The world has become so complex and fast changing, and so full of interdependencies, that no one person, discipline, culture, or community can hope to understand it. Different world-views, as well as many alternative perspectives and ways of understanding, are all needed if what academia advances is to be relevant and important to the students whose interests we serve—and indeed to

the communities in which we are embedded. One such goal of the university was to build community service, or service learning, into the curricula for every student. This was greatly facilitated by the connections into the external community that the NGOs brought with them. It was, however, an ambitious goal in a province where many of the locales in which people were working—the rural areas in particular—were beset by internecine conflict between the African National Congress and the Inkatha Freedom Party—a conflict whose flames were deliberately fanned by agents of the apartheid state. Service learning was achievable in some departments, but not all.

One example of NGO influence on the curriculum was the Built Environment Support Group (BESG). This group was founded by members of the Faculty of Architecture and Allied Disciplines to alleviate the appalling living conditions in the slums in which so large a portion of the population lived. It championed low-cost and alternative housing. Its students were challenged to devise alternative building methods and materials for houses, with one of the requirements being that they had to live in these structures themselves for a certain period of time. One staff member went so far as building an extension onto his house using interlocking milk cartons filled with a mixture of mud and cement, with a view to inviting his students to his home to witness the possibilities. With alternative housing in such demand in impoverished communities around the world, faculty members soon found themselves far more sought after for this type of work than they would have been had they stuck with the conventional first-world architecture that most faculties of architecture espoused at that time. Faculty and students wrestling with such visible and pressing problems of the local community brought great credit to the university.

Another example of a curricular benefit from an NGO was the Community Law Centre, where faculty and students assisted members of the community whose rights were being abused on a daily basis but who could not afford to engage the normal processes of the legal system. The same faculty established a Street Law Program (with help from Georgetown University in Washington, DC) to teach communities their basic rights, not only in local and national communities, but beyond. They have subsequently assisted in helping to replicate this program elsewhere.

One member of the social science faculty established an NGO program to find out what it would take to ensure that individuals with little formal

education, living in an impoverished rural community, would at least be able to subsist. For people who had been uprooted and had their family structures destroyed, in part through so many of the men having been drawn to work in the cities or in the mines, this meant that they could now could learn new skills and be given access to start-up funding. That particular NGO became quite large and attracted a good deal of attention, not all of which it welcomed.

One NGO, run by well-connected members of the external community, was called the Community-Based Organizational Network and worked with rural communities all over the province. They held a "Rural Forum" once a year on one of the university campuses, where every year the King of the Zulus (South Africa's most numerous ethnic group) was the last in the distinguished line of speakers ("No one speaks after the lion roars")—and provided a memorable moment where I was able to use the phrase "the King and I." To hear the rural-community representatives attending the conference talk about "our university" was more than gratifying.

The third benefit came through research, via a research agenda shaped to address the challenges facing local communities. One outstanding example is located in a city that was, at the time, the epicenter of the global HIV/AIDS pandemic. This happened in part because Durban is the largest port in Africa and constitutes the start and end points of extensive trucking routes. As the epidemic grew, the university housed over 150 AIDS-related research projects (both in the medical and social science domains) across its three campuses, creating an HIV/AIDS network, so that the work of each project participant was at least familiar to all members of the network.

Individuals took extraordinary risks in their research efforts. One professor in the Faculty of Law meticulously recorded the way in which the law courts handed down different sentences, depending on whether the criminal was black or white. His findings with respect to death sentences were much publicized, and he was almost continually being prosecuted for libel by the Minister of Justice. He avoided being found guilty only by virtue of the fact that his research findings were incontrovertible. But the harassment he endured, and the time he had to waste on all the processes involved, were difficult, although they served as an example to his students, who delighted in his challenges. Not all of the universities in South Africa would have been as delighted to have him on their staff as was the University of Natal.

Inevitably, many staff members and students were very politically involved in the resistance movement. Some had to disappear from time to time to escape arrest—and university authorities had to turn a blind eye to this. The political climate during that period made other facets of university life more constant than would normally be the case. The university also had to try to resist the South African Police's compulsion to come onto our campuses to deal with student protests, including their attempts to prevent particular speakers from participating in various events. Holding to the spirit of free speech and academic freedom involved difficult choices and, as often as not, significant risks. Student demonstrations were frequent and sometimes became violent, as a result of agents provocateur who were not necessarily students or staff.

But modeling the values of a democratic society within the university was important—imperfect as that effort might have been. It was a learning ground for civic action, just as it was in the academic sphere. Students could see for themselves how many times university managers and other staff members put their lives at risk in managing situations. Executive-level administrators were taken hostage on several occasions; once I was held at gunpoint (with an AK-47) in my office for several hours, and dealing with rioting students always involved personal risk. Any police presence, or a threat of police presence (they regularly surrounded the campus or camped out at the gates with all their military paraphernalia), inevitably exacerbated already difficult situations. This was practical learning. Students and staff bore witness to us executives facing the police down and asserting the university's autonomy. Neutrality wasn't an option. Students and staff could see we didn't always win, but we were setting an example.

The year 1994 brought freedom to South Africa. The dream of a democratic society that had long seemed so distant, and for which many of our countrymen and women had suffered and died, a dream for which my university had risked its very existence, became reality. The world rejoiced with us. In the words of Donald Woods, "Suddenly the whole world seemed changed, and the human race capable of so much more."[2] Democracy brought with it all sorts of practices that would have been largely pointless in our previous lives under apartheid. One of them was lobbying with government ministers. When this was necessary, another benefit of good community relationships was evident. On one occasion, after our funding from the gov-

ernment had been cut, I told the head of the Community-Based Organizational Network about this and asked her advice about whom to approach and how to protest against this loss of funds. She set up meetings with government ministers for me and then organized a remarkable group to accompany me to those meetings.

Our leaders, who had made so many sacrifices to achieve democracy, found that establishing the processes by which it could be made to work was also a very difficult task. Those of us in university management learned three precious things about democracy. All three impacted the life of the university.

1. *Democracy is not an event; it is a process, even a work in progress*. Democracy needs our constant care if it is to deliver on its promise. If its promise were easy to fulfill, we would not be suffering the gross inequalities that we see in societies today, societies that we like to think of as essentially democratic. Education needs to play a key role in its sustenance. As a university in a new democracy, we had to walk the talk. Universities are not naturally democratic (one only has to remember how long it took for them to admit women into their august circles), and making democratic practices work is part of their social responsibility. Doing this in the early years after the ending of apartheid was particularly difficult, because people's expectations were so high.

2. *Democracy is much more than just voting from time to time*. Democracy is about participation as much as governance—and participation is enhanced by education. In South Africa's new democracy, our students were not prepared to accept rules and regulations that they neither understood nor had any hand in constructing. A long process of meticulous reexamination of those rules and procedures needed to follow. Strangely, we came to dread the phrase "Have you consulted the community?" Many different parts of the community are not qualified to judge a curriculum, for example. But one thing was possible: we had well-regarded community leaders on our governing bodies and they embraced their roles with enthusiasm. Sadly, this has not been enough, and even now, twenty years after freedom, South African universities are places of great contestation.

3. *Democracy's promises could not be quickly or easily delivered; indeed, perhaps they never will*. Apartheid had created divisions that, in turn, had produced hideous social consequences. Democracy by itself would not heal

or change these. Attention had to be given to redressing disadvantages, to making sure there was equality of opportunity for all citizens. Diversity in the university's population was a real test of democracy. It became equally clear that an educational system that gave a high priority to access must be the cornerstone of a democracy, for where else would redress be sustainably achieved? But even a university willing and ready to correct imbalances in its staffing profile could not conjure professors out of a population so long denied proper education. Even a university such as ours could not afford unlimited scholarships for poor students. Today, many potential students do not believe that the university, and their democracy, have delivered their promises—and they are not satisfied with the current realities of a system still coping with redress and longstanding disadvantages.

This chapter has attempted to give a glimpse of the kind of role a university can play in a country governed by a repressive regime. It is hoped that the role of any university is not only to prepare the leaders of tomorrow, but also its citizenry, to take up their places in today's world in all its complexity. During the years described here, our university was educating both black and white students in a changing society. In the years since then, it must be hoped that these students and the faculty who worked with them have used their university experience and what they witnessed as practical learning that helped in the rebuilding of a new and democratic South Africa.

A university can use its special place (where its autonomy has particular value) to create spaces where civil society can find support to help fulfill its function in a struggle against oppression. No one who has lived under such oppression would be under any illusions as to how difficult this could be. But every university should understand that if they are to be relevant in the communities in which they are embedded, they cannot turn their faces from the realities of their peoples' daily struggles. Such engagement will affect the heart of the university: its curriculum, its research, and its civil engagement (which will impact the previous two).

A university can gain much by civil engagement—even in ordinary times. Indeed, in these situations a university learns more than it teaches. Ivory towers, however constructed, were never a good idea and should now not even be a possibility. The groups to which the University of Natal pro-

vided sanctuary during those difficult times gave much more than they received, and the university is, in my opinion, indebted to them—as is South African society as a whole. They played invaluable roles in bringing an end to apartheid and establishing a new order, with many of their leaders taking up important positions in the country's post-apartheid government. In the terminology of this book, the University of Natal was a SCALE Squared center in a context where the university not only had to teach, but also experiment with new ways of civic engagement to advance principles that it held dear.

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A Promising Start Derailed

Kakamega, Kenya

Miriam K. Were

Many of us who were starry-eyed with optimism when most of Africa gained its independence in the 1950s and 1960s are now dazed by the realization that more than half of our people remain stuck in subsistence living below the poverty line. For many, prosperity has come, especially in a rapidly growing wealthy class and also in a modestly growing middle class, but for most, the prosperity that was promised has not reached all that it could have; it has not even come close. The promises have passed many of us by.

In the 1970s, it seemed as though Kenya, along with the rest of Africa, was on the development road. National leaders, having just won independence, knew that their power derived ultimately from the people, and they spoke of ways in which their people would soon rise. But projects that initially seemed full of promise failed to mobilize public energy on a large enough scale. During this era, Cold War polarities were forcing African governments to choose sides, and macroeconomic forces (such as the falling price of oil, exports of minerals or other natural resources, and large loans from international banks) were deflecting governments' attention from communities and from their accountability to them. After that period, two decades were lost as trickle-down development failed. We need to rediscover the confidence that came with believing (and acting upon the belief) that destiny was in the people's own hands, when our communities were partners with our experts and our governments, showing accountability to the people for whose benefit they serve. This chapter is a case study of a project that could have gone to national scale soon—but did not. Why?

After three decades of deferring implementation of the findings from the Kakamega project, Kenya's 2006–2010 National Health Sector Strategic Plan is now utilizing that information—as well as broader results from other projects (such as those set up by Dr. Dan Kaseje) that have also lasted across a generation. Evidence that endures has persuasive power—even with governments that once rejected it. (Chapter 13 also presents an empowerment-grounded project, with action groups by women in Afghanistan continuing long after finance-driven projects would have ended.) What this chapter shows is how the most important partner in scaling up, the government, can become the partner that, in seeking to help progress take place, causes a promising seed to die. Setting up a community-based project is one thing; this chapter shows the dramatic difference between community-based and community-owned undertakings, where people's energies are the force of change in the latter. The good news is that now Kenya's government is recognizing the evidence of community ownership and is using that for national-policy implementation.

The Kakamega project on community-based health care, lasting from 1976 to 1982, achieved great improvements in environmental sanitation, clean drinking water, basic primary health care, the immunization of children, family planning, and many other health and economic indicators. Perhaps the most important were qualitative changes that increased self-reliance, mutual support, and confidence—a sense of empowerment that came as people worked together. Communities organized their own structures to link with the formal health-care system. They established community bank accounts from which most activities were financed. This was a holistic change resulting from a health intervention. By 1980, things were going very well indeed.[1]

The Kakamega project demonstrates a very typical development problem: an extraordinary project gets started—and in this case achieved worldwide recognition—but then the momentum stalls. The central problem with the Kakamega project was that a true three-way partnership was never created. The community and experts worked well together, and, as the project evolved, officials at the national level lent support. But after the project was publicized as a dramatic success story at the Alma-Ata World Conference on Primary Health Care in 1978, the Ministry of Health, using international donor money, took over the project with good intentions but no understanding of how to work with the community base on which a successful

partnership must be built. The result was that over time, the other two partners (the community and experts) were disempowered.

Origins of the Kakamega Project

A few years after graduating from the University of Nairobi's Faculty of Medicine in 1973, I proposed a comprehensive, community-based primary health demonstration in Kenya. My professional friends, along with officials at the Ministry of Health, were both incredulous and dismissive. Many asked, "How can you think of abandoning direct delivery of health care to the people?" I explained that people were already looking after themselves, since coverage from the health-care system was less than 30% at the time. The challenge was to find ways to strengthen their capacities. They dubbed it "second-class medicine." Because I had graduated as the best all-round medical student, two years later I was awarded a Population Council fellowship to study at Johns Hopkins School of Public Health. I returned to Kenya to do two years of fieldwork for my doctoral dissertation. The Ministry of Health lent support by creating a pilot project to explore whether communities could serve as the basic units of the health-care system in the context of a national primary health-care strategy.

The project covered two divisions of the Kakamega district, in Kenya's Western Province, with a total population of 134,200: Tiriki, consisting of fifty-three communities, and South Kabras, consisting of thirty-nine communities. In each division, the only outsiders were a team of facilitators that included a community nurse from the Ministry of Health, a community-development assistant from the Ministry of Social Services, and a data expert from the district statistical office. Both teams were trained in participatory learning techniques. To provide official involvement at the local level, a medical assistant/clinical officer supervised each team. I could join them only periodically.

Collecting Data and Building Capacity

Activities started in each location with a *baraza*, an open public meeting traditionally used by chiefs to communicate with the people. Since we had heard conflicting definitions of community boundaries, we first asked for the people's guidance in defining local community units in order to organize project services. After intense argument, the people agreed that a geographically discrete unit of neighborhoods and hamlets was best, so

that "no one would eat twice and no one would be left out." The next task was to identify action priorities. The two teams of facilitators went through their areas, asking the people what they considered their most important problems and taking care not to push people in their answers. Among the ninety-two communities, 90% identified some health issue as their number-one problem, with malaria, diarrhea, and other childhood illness taking the first three slots. Other frequently identified problems were poverty, food shortages, and shelter. An important feature is highlighted here: when people are sick, health is the top item for action, but when they feel well, health falls to a much lower priority. When health is a high priority, there is an opportunity to use it not only to promote healthful living, but as a means to reconstruct and control one's whole life.

Once the communities had identified their problems, they discussed possible solutions with the teams and then formed community health committees, made up of three women, three men, and the community health worker. A health solution was thus being created by community teamwork, not health professionals. A man was chosen as the chairperson in 98% of the communities, and all the communities chose a woman as treasurer, "because women will not steal the little money we collect." The selection criteria included literacy in the local language, respectability in the community, and "a good heart." The method of selection became a big issue. The people wanted us outsiders to make the choice, explaining, "If we don't choose the chief's relative, he will beat on our heads forever, but you can go away." We finally settled on a compromise. At a *baraza* on a day publicly announced in each local area, and after extensive discussion, those interested in the position lined up. Then, in what they called "deciding in the daylight," all the people lined up behind their individual choices. The three people with the longest lines from each community were then assessed for literacy and knowledge (through an examination set by the project team), and a final choice was made on that basis. Women made up 99% percent of those selected to be community health workers.

As soon as talks on community action began, the issue of money came up. Most communities expected the funds to come from outside. At a meeting of the community health committee, the team of facilitators explained that the money would have to come from the people themselves. "We may have to become a little poorer in order to become richer later on," one old man explained. The people decided that if the project was to be truly their

own, it was important for them to give something to their community health worker. They established a household levy, as well as a minimum fee for service, to start their community fund. As the money accumulated, the people could hardly believe that "this much money could come from us, ourselves." In addition to the monthly payment to the community health worker, withdrawals were made to purchase cement for protecting springs and to cover expenses for clinic and community activities—they recognized that health was shaped by how they lived. Gifts made at harvest time were sold and that money was added to the account. Fears that the money would be misused proved unfounded; each community insisted on a level of transparency that allowed them to "watch each other like open-eyed hawks." Money was also coming in from external sources, but these outside funds were not controlling the local ones.

Systematic data collection was an early priority. When the people decided to have household levies, they realized that they had to have complete household counts. The first household surveys collected information on the number of people in each family and the home environment. The right-hand men of the local chief served as liaisons between the teams and each family. The response was so good that people began annual surveys of vital statistics. This survey was expanded to nine questionnaires covering the whole context of their lives: demography, preventable diseases, use of preventive measures, agriculture, income and expenditures, dairy cattle, cash crops, distances to facilities, and family planning. Each year the people became increasingly proud of and fascinated by the data about themselves.

Evolving Partnerships

Any community-based project gets its strength not only from the community, but also from outside support services. For a health project, the balance between care in the village and secondary care is especially important—a community-level worker cannot handle every medical need. To strengthen community-based capacity, it was essential to increase the support the clinics in town provided to the villages. Community health workers were taught that they must refer certain health issues to their district health center: women in obstructed labor, children with very high temperatures who had convulsed even once, and all cases of moderate dehydration. The plan that evolved was for the committee to organize the patient's transportation, while the community health worker stayed with the patient. Trans-

portation took various forms, including bicycles, homemade stretchers carried by people, and private cars.

When it became clear (after several demonstrations) that women in obstructed labor could be saved if they were transported to the district hospital in time, linkages grew between health needs and social needs. For example, several communities that had lacked roads began, through their own organized labor, to improve tracks to roads that could be used by motor vehicles. But there were rivers to be crossed, and the people didn't know how to put up bridges. In a meeting the people agreed: "We must go to the district headquarters in Kakamega to talk to the district road engineer. He is not there just for town roads." And so they went. The bridges were built. Taking control of their health services led to action on roads and bridges.

Expansion of Women's Roles

Improvements in overall village life benefited women's self-perception. Although people found it acceptable for women to participate as treasurers of the community funds and as workers, initially many criticized the project for looking up to women or publicly praising their contributions in other tasks. Sometimes, as I worked with the larger community groups, I had to be direct and personal when making points about women's roles. Quite often this involved reminding people, especially the men, that I was a wife and mother just like their own wives. Highlighting this common status broke down barriers. A frequent comment was that women had to be kept in their place, because otherwise they would start to speak "rudely" to men. At one meeting I asked the men, "Do you think my life has dignity in the eyes of my husband?" "Yes, obviously. You are a doctor," the men responded. I then said: "You have seen my husband come to some of these events with me. Do you think because he is courteous to me I talk rudely to him?" There were some embarrassed grunts. Then someone said: "You are different! You are a special woman." To which I replied, "Are you telling me my husband did a better job of choosing a wife than you did?" Silence. Then I would add: "I don't think so! I think your choice of wives was excellent!" Silence. Finally someone said, "Well, this is the way our people have *always* acted!"

It became clear that women, who were most in need of a breathing space, would at first find it only through involvement in activities that

were generally approved of by husbands, fathers, and even brothers. In many places, such as tradition-bound Africa, complete gender parity remains a long road on which women have been allowed to take only a few small steps. But bit by bit in our villages, relations between women and men expanded. The more mobilized communities became, the more their larger vision of development was endorsed, with women taking part in improving environmental sanitation, protecting springs, developing kitchen gardens, building latrines, and paying for first-contact health services provided by the community health workers. Immunization days were organized once a month, and all young children in the community were taken to the health center as a group event. The youngsters were carried by men and women alike, each taking turns to make the trip to town. Eventually, community-based daycare centers were established and supervised by adults, an approach that replaced the former practice of leaving babies in the care of children. Later on, the discussions moved to spacing the births of children, and the communities endorsed modern contraceptive methods. Over the years, both women and men became increasingly active in political matters. This was not one of the project objectives, any more than constructing roads and bridges was. But it became clear that when people feel confident and empowered, they increasingly participate in the important issues of life and will not be kept on the fringe of decisions.

By 1980, people were experiencing a sense of "we can do it" empowerment that stood in stark contrast to the feeling of being trapped that had dominated our opening talks in 1976. As the activities moved ahead, the teams of facilitators cut back on their involvement by reducing the frequency of visits from weekly, to bimonthly for three months, then monthly for three months, and finally quarterly. In the first *barazas*, a major issue was to decide the sequence of extensions of the project from one community to another. After much debate, it was agreed that the poorest and most remote communities would be first, because their needs were greatest. The use of data was crucial both to these decisions about which activities to undertake and to the communal sense of achievement. People could see the results firsthand and talk through what they meant. Data were not kept in government offices, but taken to the communities. As people planned their lives, it made sense to them to also plan their families. With the advent of active national family-planning programs, the birth rate dropped sharply.

Transition: 1980–1982

In 1978, Kenya presented the Kakamega project at the World Conference on Primary Health Care in Alma-Ata as a demonstration of the proposed new approach for the global primary health-care movement. In that same year, UNICEF honored the Kakamega project with its prestigious Maurice Pate Leadership for Children Award, for outstanding contributions to the development of primary health care in Kenya. In 1979, UNICEF organized a global senior-staff seminar in Kenya, so officers from all UNICEF country programs could observe the project's process and its accomplishments.

With such global visibility, in 1980 the Ministry of Health decided that this national pilot project had proven itself and took direct control. The teams that had been leading the project were reabsorbed back into their regular jobs. Only the field supervisor, who had been assigned to the provincial primary health-care division in Kakamega town, was still in a position to make periodic visits. With the affirmation of the Alma-Ata conference, international donor agencies—hesitant earlier to fund a nonprofessional approach, but reassured by the project now having the government of Kenya behind it—began to pour in huge amounts of money. This undermined the project's community-based management; it transferred the locus of control to the donor groups and reoriented work objectives from the community to outside priorities. The communities started working for what the distant donors wanted.

A parallel distraction came from visitors. During the pilot stage, a decision had been made to limit the inputs just to local resources; no volunteers from outside had been accepted. But international recognition of the project's success brought a flood of enthusiastic visitors, eager to help. These visitors asked a lot of questions, expected precise answers about matters still under discussion, and tried to move activities forward in their own shorter, less-inclusive time frames. Remembering colonial days, the villagers inevitably felt that visiting foreigners were making judgments about whether their answers were "good" or "bad," and that they were being tested by questions, such as "what is the purpose of the Kakamega project?" This questioning added to the anxiety people already felt about the uncertain process they had started. The people said, "When a seedling is planted, it is not pulled up every day to see if the roots are taking hold."

While the Kakamega project was developing, other community-based projects sprouted up all over Kenya, with an especially large number

initiated by missionaries. Notable among these was the Kenafya project, sponsored by the government of Kenya and funded by aid from Finland, which extended the Kakamega approach to other parts of the Kakamega district and to Kenya's Western Province. Additional projects, supported by other groups, concurrently expanded care in Nyanza, Eastern, and Coast Provinces. Elsewhere in Kenya, the Aga Khan Foundation supported parallel projects, while the Ministry of Health encouraged church groups and small nongovernmental organizations to expand community-based care, especially out of mission hospitals. The formation of a very active coordinating committee at the national level made it easy for communities to get international support for village-based work. On the surface, this international support appeared to be a good thing, but the methods of organization, sense of urgency, and outside priorities that were brought in all had a strong tendency to undermine community capacity. From the beginning, there had been funds and concept inputs from the outside-in, but these contributions were not controlling decisions. The projects worked when there was a true partnership; what changed was that when the outsiders took over, enforcing their role with so much funding, the outside-in overran the local community. As the outsiders' development objectives displaced community-based objectives, in many places the embrace of well-intended donors smothered their projects into helplessness.

1982 and Beyond

In 1982, with all the esteem (as well as money) coming to the country, Kenya's Ministry of Health created the Community-Based Health Care Unit within its headquarters in Nairobi. The consequence was to institutionalize a people's process. Those who had served as key staff in a successful demonstration project were given no role in its larger implementation. Instead of providing supportive supervision to help projects grow through teams of facilitators holding dialogues with communities, the ministry issued top-down directives, behaving as they had been taught officials should behave. Back at the university, however loudly I explained the basis for the Kakamega project's success, key officials were uninterested in its "time-wasting tactics." The government was going to scale up this program.

The Kakamega project continued to receive visits from top government officials, bringing along high-powered teams from UNICEF, the World Bank, and many other donors. Easily observed before-and-after differences at the

project sites were used as testimonials to its positive achievements. But the publicity now focused only on results, and this deflected attention from the process. Given the sums of money now coming from the donors, it was easy to believe that the programs were becoming stronger. Officials and international experts could not understand that the project's successes had arisen from the process, not from performance targets alone, and that the forward momentum had been generated from within the community, not from external financing. They assumed that by adding their version of support—more-stringent management directives and considerable funding—they could make things happen faster and go to larger scale.

Community had become the target; the sense of partnership was gone. The top-down and outside-in sectors had never acquired a fundamental faith in a three-way partnership that used local data instead of outside prescriptions to change behavior, and that accepted the limitations of each partner's roles. They were uncomfortable with the need for humility, as well as the necessity of learning both to set aside their own culture (bureaucratic or ethnic) and to delegate authority and responsibility so that these aspects could mature in the hands of their new owners. Delegation is not remote control.

I've noticed all the above failings across subsequent decades of international work in scores of projects worldwide. The first principle of SEED-SCALE is "build from success"—but failure rather than success can quickly grow when the process is taken from the community. Outsiders and donors will have success when they realize that theirs is one voice in a partnership and that their resources must be subservient to those of the community. I do not know how I can emphasize this point more strongly—opened ears to the voices of others must become a fundamental awareness.

What most drastically undermined the process was the arrogant, simplistic assumption that getting community participation merely involved "telling the village people to clean up and do a few things." Community-based action is more than just common sense. Community is not a target, and it is much more than a place. Central to this change of orientation was a focus only on results, which were pushed ahead by money. Money allowed outsiders to introduce their priorities, which took the place of community processes. Seeking to systemize the increasing cash flow, the Ministry of Health established a framework of oversight and mechanisms for conveying outside contributions to communities. Cycles of periodic overabundance

and drought followed. Overabundance has occurred when, after the 1978 Alma-Ata conference, many agencies adopted the new development fashion in short-term projects, but then abandoned communities in order to pursue other interests. Both the national government and the donors failed to understand that communities were sensitive to the need for stable services, and thus to steady funding. Drought took the form of a periodic drying up of local inventories of essential drugs. Because the donors now controlled the distribution of medicines, communities no longer had their women watching "like open-eyed hawks" over each local fund and medicine cabinet. Many aspects of health care may need outside support, but seeking to provide that support within a context of community discussions is critical.

The Kakamega project was formally disbanded in 1982. Nevertheless, nearly two decades later, the experience continues to have an impact. Both in the communities and in the Ministry of Health, people recall the successes of the Kakamega project, when the villages were taking action in their own behalf. Yet when the villages lacked an enabling partnership, there was much confusion about those actions. Since the implementation of the Community Health Strategy in 2006, however, there has been a serious effort for properly working with the people in establishing community health services.

Conclusion

Patterns to Own Our Futures

Chapter 23 ended with a case of "seed-to-stale," the story of success disappearing, and this Kakamega example is very instructive. Many reasons explain why good projects fail, but chief among them is people taking control of a project through money or power, and in so doing taking away internal dynamics causing its success. Mandating action may be necessary when dysfunction occurs—but such acts, while they may be immediately helpful, may also undermine a community's ability to evolve the project. This is the core dynamic of social change if the energies of the community are to come forward.

So there is a choice when confronted with failure: as an expert and an advisor, do you correct some specific failure, or do you strengthen the process? Emphasizing the strengthening process is the point of this book, unless a dependency relationship is the long-term desire. If empowered local growth is the objective, as soon as control is exerted over one dysfunctional event (as sometimes it must be), the next challenge is how to transition away from the control that was engendered by the correction.

Social change, as advocated by SEED-SCALE, is a means of nurturing empowered local growth. Social change arises out of a community and its partnerships; the mix of forces and resources involved will be complex, and, because of that complexity, the opportunity always exists to adjust the forces and resources to create more-effective capacity. SEED-SCALE offers a method to accomplish that—a simple, site-specific way to deal with the mystifying everyday complexity of the socio-econo-biosphere. To do so, a process emerges, and that process is driven by principles that primarily are inside the system. Not recognizing this all-defining power of

complex systems to suck up outsider intervention is why so many forms of aid fail in "undeveloped" societies.

This is why armies are now losing wars, and why grand government projects collapse. We have entered a new age, one defined by global relationships on all levels. The interlinked relationships are growing more global and more intertwined every day, and this expanding complexity has taken over as the determining feature of operations. In this multifaceted, always-adapting world, the deep truth for achieving progress is in strengthening relationships, for that will tightly weave the fabric of enduring prosperity.

As we walk through our lives, one great tragedy of humanity today is visible: the widening gap between those who have, those who want to have, and those who have given up. And, further down the trail, potential tragedy lurks—the legacy to our children as we persist in disrupting Earth's fundamental systems, with its likely destructive consequences. Additional dynamics are equally unknown but poised: antibiotic-resistant microbes, against which we have no defense; heavily leveraged financial debt, for which we have no collateral; and a cyber world that increasingly takes on a life of its own. And never forget the people who want to have and who have not given up, since protected enclaves and security perimeters cannot keep them out.

Previously armies, economies, and epidemics could be "managed," but today even the strongest armies do not win, the smartest financial managers cannot predict economic ups and downs, and an epidemic apparently can move anywhere from everywhere. What has changed is connectivity in bringing all systems of the world together—it can victimize us in this new age, or we can use it. We have the opportunity to learn how to function in this world of constantly emerging, unintended consequences. Connectivity is now ubiquitous—in nature, information systems, finances, and the movement of peoples—and it is growing across all spheres. To navigate amid this, SEED-SCALE offers a means to create a pathway forward. We need to orient our thinking as a continual, informed response. And as we discover both the path and how to travel along it, it helps to heed the Spanish poet Antonio Machado:

> Caminante, son tus huellas el camino y nada más;
> caminante, no hay camino se hace camino al andar.

Al andar se hace camino
y al volver la vista atrás
se ve la senda que nunca
se ha de volver a pisar.
Caminante, no hay camino sino estelas en la mar.

Traveler, your footprints are the path, and nothing else;
traveler, there is no path, a path is made by walking.
By walking a path is made,
and in looking back one sees
the trodden road that never
will be set foot on again.
Traveler, there is no path, but wakes on the sea.

More than a century ago, notable experiments began (under Abraham Lincoln, in the state of Kerala, in China with Jimmy Yen, in the Adirondacks). Then, after World War II, we began learning how to accomplish large, planned, positive developments: increasing the food supply fourfold, controlling the three great killers (tobacco-caused disease, diarrhea, and pneumonia), and extending these health successes to country-level health planning for China, Peru, and other places. More recently, learning how to improve lives has become a skill that can be done almost anywhere—from the city of Green Bay in Wisconsin, using football; to Gadchiroli in India, creating community through responses to addiction; to the University of Natal in South Africa; providing a safe haven against repression; to marginalized women in Afghanistan, finding an ability to come together.

But we must also understand that we can easily go backward. Our complex world operates under a mostly forgotten postulate of the nineteenth century: the Jevons Paradox, which states that, because of unpredictability, breakthroughs designed to advance civilization usually do the reverse.[1] In 1865, William Stanley Jevons noted that increased coal-burning efficiency made steam engines more useful; that led to more steam engines, which led to a greater demand for coal and produced additional cinders, soot, and smoke. Thus each step along the path of progress created more destruction, instead of less. The Jevons Paradox explains why increased fuel efficiency in cars causes people to drive more miles and ultimately consume more fuel. It is why technological progress in medical care is associated with iatrogenic (doctor-caused) disease, and why controlling one infection

leads to the emergence of others. Whatever we do is likely to create other problems.

The answers to these problems have always come through the application of our energies: creativity, discipline, labor, collaboration, and trying again and again. Abundance and well-being are the results. Life is all about the journey: making and finding our way. Challenges have come about through our actions—inequity, climatic chaos, epidemics, and financial unpredictability—but the possibility of positive feedback loops can also come from our actions, and our aspirations. By following that potential, we end up in places we cannot imagine.

The problem of our collective journey can be framed in terms of a story. It is almost inconceivable that the following tale could occur in the life of a person today; it sounds like a fable from the founding of Rome. In the winter of 1916, in the jungles of northern India, the Taylor family was camped in a large mango grove by Dhanpura village, in the foothills of the Himalaya. According to the often-told story by the nurse who cared for many of us Taylor children:

> I was asleep, my head leaning against the foot of Memsahib's camp cot. The bed shook, and I opened my eyes to look up at a large she-wolf above me, standing on the bed. The kerosene lamp was dimmed, but I saw the wolf reach down and pick up Carl, who was then four months old. I screamed—and you know that I can scream well. My hand found Memsahib's *topee* [pith helmet], and I slammed it into the side of the wolf. She dropped Carl Baba and turned to snarl at me. Again she reached to pick up Carl. We were alone in camp; everyone else was in the village at a meeting, I kept screaming, and Sahib's two hunting dogs charged in, barking. The wolf jumped over me and escaped out of the back of the tent.
>
> In the excitement after everyone returned, the villagers said the wolf would come back, that she was looking for a replacement for a lost cub. Memsahib wanted everyone to pack and move camp, since the night before, when Sahib was away at a meeting, she had been suddenly awakened by a large, doglike animal on the foot of her bed and had kicked it off. Sahib said that Indian stories about wolves taking babies to raise were sheer superstition. He would guard the tent with his gun. But each of the next two nights the wolf came back, trying to get in through the opening at the back of the tent, which was now tied shut. Sahib did get one fine look and saw it was a wolf. So on the third day, we broke camp.

As architects engaged in building our structures in the planet's systems, we've had fair warning. There is ample evidence that Mother Nature, in her many identities, has come to the foot of our bed; slamming her with pith helmets, armies, or antibiotics will not be the remedy. We may be able to engineer the econo-system, and even control the socio-system, and we may succeed for some years in kicking off the environmental danger. But ample evidence exists that *the connected world* will always seek a new balance. Technological weapons will not remove the threat. Systems that are the foundation of life are being disrupted. We may master how to keep stock markets from completely crashing, and we may learn to ship cargo so that it quickly reaches places where there are natural disasters, but we have not learned how to shape the interconnected complex system. Nature is not a computer for which we write software. We are part of the software, most likely the virus that has caused its dysfunction.

But in this great system, we have a very powerful resource: we have the ability to work together in communities, and, increasingly, become global communities through worldwide networks. This places us in a new role within the systems of life, and we are learning how to use this ability. While we are part of the larger software, and driven by its emerging design, we can also have the opportunity to write some of its algorithms. Actions then give rising understanding, so we have the potential to write not just destructive code, but an operating system for a better way of living. *That is what SEED-SCALE allows: it gives us a process to find immediate actions for today that take into consideration the larger realities. It is a universal process for site-specific solutions*.

In this book we have presented examples of how ordinary people met great challenges by taking specific steps that did not entail excessive risk but then grew into surprising journeys. That is what SCALE is all about: steps in improving both quality and quantity, and setting both into synergy. Each small success in addressing community concerns builds forward momentum, which then reaches out wider to address more distant problems. As confidence and capacity increase, so do sophistication and trust. The communities described herein undertook actions at a pace their people could handle. For them, the accelerating change that grew from these was not disruptive, because they had a voice in deciding which priorities were most urgent and had direct roles in the actions that followed. Often they were frustrated, but the momentum carried them on, in a manner they

owned in important ways, and ultimately their achievements were transforming.

There is a global consistency in this forward momentum that needs special mention, one that is illustrated repeatedly in the case studies. In most societies, women tend to be the most-effective agents of change. Though seen as keepers of tradition and too-often confined, women are also forward-shaping, reliable activists, particularly when they see that an action will serve their children. Time and again, it is women who are more willing to mobilize for the common good, more willing to change old norms, and quicker to create new organizations. To open this potential, women need the clarity of a process and demonstrations of how that process is working.

In the fall of 1999, we were undertaking research in central Nepal on how that society had changed during the fifty years since Carl had initially visited the country and conducted Nepal's first scientific health survey.[2] Lumpek village sits on top a ridge reached by a 5,000-foot (1,500-meter) climb, a perch from which a fantastic panorama embraces the snowcapped Himalaya, with luxuriant green valleys below. A focus-group discussion was under way with fifteen women who were health volunteers in their communities, women who had taken time that day from the semiannual distribution of vitamin A to children to talk to us. They were outspoken in describing their difficulties. One said, "When I get home tonight, I'll find my buffaloes hungry, the chickens clucking for their food, the two pigs hungry too, children crying, and my husband unhappy because the food isn't cooked." We replied: "Then why do you work helping the village? Why not stay home and do your tasks?" Another shouted back: "Our neighbors won't let us quit! They say their children's health depends on us. But though we do the work they demand, in return they don't help us. Then they criticize us because they think we're making money from the rotating drug fund. The village development committee and health post don't help either; all they give is orders, while we do the work!"

The villagers were halfway along in the SEED-SCALE process. These women had organized, but their community had not, and the oft-heard accusatory response to community workers had come to them. To gain maximal change, it was necessary for *all* women, not just these few, to share the work, preferably in evidence-based plans that all had helped to shape. To accomplish this, they needed enabling support, not officials or experts telling them what to do. This situation in rural Nepal differs little from the

one in the American community where we live and work. Daniel is a member of the county's Economic Development Authority, and many in the community blame the authority for not "bringing in jobs." Progress comes most reliably when all participate.

Every community is developed for its time and place, using the resources that it has. Definitions of "backward" and "underdeveloped" reflect the view of outsiders: individuals who probably could not survive under the conditions in which the community they point to finds itself. So, when a balanced perspective is taken, every community is always developing. Opportunity comes from optimizing that development, based on the available time, values, and resources the community has. SEED-SCALE provides incremental responses that gently redirect the forces. It changes the dynamics inside the system by introducing a different, community-friendly balance to decisions. A wise Iranian friend, Torab Mehra, described the process in his country's rigid bureaucracy:

> The first need is to set your top priorities with clarity where you want to go. In the system you work in, no one else likely has such clarity of vision. Those people move back and forth in Brownian motion, like molecular particles. So you start to move to your vision. Quickly, you will find the person above you in the hierarchy will not see the benefit and will block your idea. If you are willing to take a risk and have the right connections, you can go around him. Be careful, because he will try to get even. In the meantime, work on two smaller things you want with people who will cooperate. Getting these will build momentum and your credibility. There are always people willing to try small ideas that sound good and will improve their status. What you are growing, though, is partnerships, your power in the bureaucracy. After a while the person who blocked your first priority will move his attention to other activities or change position. Then you can go with your idea. Mold the system from the inside, even though at first it seems hopelessly rigid.

For each of us, the government and institutions we are a part of are pretty much like us: they do their simple tasks and keep in place systems that reduce risk for themselves. In this context of systems that try to control us, the SEED-SCALE workplan slips a new piece of paperwork into the foundation of the processes that are otherwise operating, and in so doing reshapes the basis for action, redirecting societal change to be site, resource, value, and opportunity specific. Workplans create a fact-based foundation

of aggregate priorities that can influence official policy at the same time as they define local actions. Much of their power comes from the fact that they are written down, and thus can serve as official documents of the community. An understanding of these workplans is successful when it results in another acronym of SCALE: Stimulating Changes in Attitudes of Leaders and Experts. Workplans guide the people and influence those who may have been blocking a particular change.

The genius of a workplan is that it is simple. Although the movement of large forces is complex, and although the bureaucracies that manage our systems are both confusing and self-serving, a workplan focuses attention away from this complexity. It provides a local voice, and it gives each participant a role. This is what makes it possible for everyone—citizens, experts, and officials—to succeed as they work from their varying directions. Until there is a shared plan, actions resemble the behavior described in an ancient Chinese proverb: "We are like a big fish that has been pulled from the water and is flopping wildly to find its way back in. In such a condition the fish never asks where the next flip or flop will bring it. It senses only that its present position is intolerable and that something else must be tried."[3] Creating a workplan determines where the river is that is right for each of us, and when we get into that river, a new plan unfolds. It is tempting to attribute our inability to find the river—or, once we are in the river, our inability to swim—to not having resources that are adequate for the magnitude of the tasks. But most problems have had enough money, people, and ideas thrown at them to show that more resources are not the solution; nor are the resources that we need more experts, more buildings, or more anything.

SEED-SCALE appeals *because it does not presume one political stance is correct, or that money and a changed policy are required*. SEED-SCALE assumes that you can start wherever you are. On the one hand, it promotes determination at the community level and a cautious extension of exposure; on the other hand, it encourages looking beyond individual self-interest to see responsibilities and looming implications. In moving toward life's grand objectives, success comes when we always remain open to learning from our mistakes, expect that the new path could lead to more errors, and, in that event, build from our strengths. What carries us forward is taking better next steps each time.

In this book we have used the Green Revolution as a worldwide example that showed how concerted action can avert a catastrophe, such as the famines that Malthus and others predicted. The Green Revolution is also an illustration of how something good must continue to learn from any resultant problems. The successes of the 1960s that produced four times more food for the world brought also environmental, economic, and social failures, because this revolution was not continuing to learn. In India's Punjab (where, as a father-and-son team, we searched rolling savannas for black buck; chapter 4), the land previously was partially farmed and produced 1.7 million tons of wheat and 2.2 million tons of rice; now, after four decades of the Green Revolution, the same region produces 5.1 million tons of wheat and 6.8 million tons of rice—8 million tons of new food annually.[4] Hundreds of millions of people have been fed from what is now known as the breadbasket of India.

But negative consequences have been growing behind the more prolific harvests—and little has been done because the larger situation was being ignored. While they were averting famine for current generations, the planners of the Green Revolution were not focused on its implications for generations yet to come. In the words of David Seckler of the International Irrigation Management Institute: "At some point, this house of cards will collapse, and when it does, India's grain harvest could fall by as much as twenty-five percent . . . in a country where the supply and demand for food is already precariously balanced."[5] Older seed varieties adapted to Punjabi soil and water were exchanged for new grains that flourished with intensive applications of water and fertilizer. The planners assumed there would continue to be an abundance of water in the Punjab (the name means "Five Rivers") and introduced the water-intensive practice of transplanting young rice in hot May. This nearly doubled the amount of water needed, compared with transplanting it a month later, at the start of the monsoons.

Intense irrigation caused mineral salts to rise from soil and poison the crops. Irrigation also caused nitrogen fertilizer to filter down and contaminate the water table below. Carbon, zinc, and iron were leeched from the soil as the heavily applied irrigation water seeped down. As the soil lost its natural fertility, the need for artificial fertilizers grew. In the early years, only 10,000 tons of fertilizer were needed for the whole Punjab, but by the end of the third decade, 100 times that amount (1 million tons per year)

was required. In response to that hundredfold fertilizer increase, grain output increased fivefold.[6] Old canals could not provide enough water, however, so tube wells were drilled. Eventually there was a tube well for every four hectares (10 acres) of land around Ludhiana, where we had lived. To keep those wells pumping (and the politicians in office), the state gave farmers free electricity, so farmers then pumped even more water. How was it possible to put too much of something as wonderful as water on their fields? Four decades later, the water table is four meters (12 feet) lower and falling farther. In northern and southern Punjab, some soils are now so waterlogged that they have lost virtually all their agricultural potential.[7]

The Green Revolution is an example of how well-intentioned development goes awry when it violates the four principles of SEED-SCALE—build from success, three-way partnerships, data-based decisions, and workplans that change behaviors. The community of proud, strong-minded Punjabi farmers believed that the new techniques would continue what seemed at first to be a miracle. Overly confident outside experts ignored the historical experience from British times—an experience that was also in the memories of many local farmers—about how this earlier irrigation practice had produced similar waterlogging and salinization. Back in 1968, the director of India's Agricultural Research Institute, M. S. Swaminathan, could foresee today's reality: "Intensive cultivation of land without conservation of soil fertility and soil structure will lead, ultimately, to the springing up of deserts. . . . Indiscriminate use of pesticides can cause adverse changes in biological balance and lead to cancer and toxic residues in the grains and other edible parts. Unscientific tapping of water will lead to exhaustion of this wonderful resource."[8]

The leaders of the Green Revolution were as well intentioned and well informed as leaders of a high-priority project are likely to be. They had a surfeit of financial and research resources. Their focus on food production and their lack of attention to the wider context reveals the limits of managed action, even when done in what seems to be the best way. No one person or no single team can ever be expected to have an accurate perspective at the beginning of a project. We keep emphasizing the importance of workplans, but the plans we advocate are the results of process—not designs that try to project actions into the future. Plans are not what works, but a planning process is. Plans themselves, especially ones that look more

than a year into the future, will, in a complex system, usually be wrong. The plan is evident after the journey is over.

We face a planet-wide, socio-econo-biosphere opportunity. We can save wild remnants by assembling, piece by piece, solutions that address peoples' core behaviors. We can flatter ourselves that by saving pieces we are doing good—and that that is enough. But it is *not* enough. In this grand endeavor, we can no longer just pay tithes. We must do better than merely addressing the problems of 20% of the planet that we have "developed," and maybe 60% of its people who are advancing. There still is the other 20%—we are as connected to them as are Siamese twins.

Because we are now an interlinked whole, our journey must benefit the whole, and this will only arise from systems that foster cooperation. Systems of competition may create part of our progress (giving benefit especially to those who have advantages), but competition must be balanced by systems of cooperation, to engage those who are without. This is not a matter of becoming more cunning in community manipulation. Effective participation calls for true cooperation. Citizens have awakened, and aspirations and actions are taking off. The revolution of rising aspirations is—and has been—under way. The challenge has been stated succinctly by Amartya Sen: "The solution is to enlarge our freedoms."[9] Each community must select the expanded freedoms that are most urgent for it at that time: improved health, increased knowledge, leisure, food security, religious fulfillment, economic well-being, quietude.

Our Muslim neighbors have a useful concept, *sabat*, which means "what we have is only lent to us; we must pass it along." The abundance of today has come from prior generations. To expand our freedoms, sacrifice is needed for the greater good, both now and in the times to come. It is not a sacrifice of *giving up*, but rather of *reaching out*. To understand how to pass along our inheritance, we refer to another Middle Eastern desert concept: hospitality, where we welcome our adversary into our tent. To leave any person outside is not only contrary to our responsibility as fellow creatures, it is also bad judgment, as the unknown and the unseen are usually more dangerous. Though we may disagree one with another, we share a planet and must live together. Diversity gives strength to our society.

We will never achieve complete satisfaction. When we lay hands on a portion, we discover that the objective has moved, and we find that more remains to be accomplished. We know a positive development when we

experience it, but we have trouble repeating it. As we pursue separate visions, we are members of a cavalcade of earlier generations who were also seeking similar things. Today's moment is better than the moment before, but the process of change will go on. To rephrase Aristotle, development is not the end we are seeking, but the process that allows us to seek something else.

Progress has so entrapped our attention that we have come to believe that progressive development is the end result. Its meaning is fundamentally a spiritual paradox: we can never achieve an ideal life, yet we can always take another step closer to it. The value of SEED is that communities can cooperate with officials and experts to create an objective base to determine immediate directions. Once we have done that, we can do it again, never completely achieving our end, but getting a little closer each time. SCALE systematizes the steps in an effective order, so actions can be extended, yet remain specific to local circumstances. Like a long journey, the process unfolds in repeated iterations, with guidance given to find an enabling and evolving path.

The happy news is that—having a proven, reliable, replicable process—paths of social change can be specific to each community's resources and, perhaps more importantly, to their values. The SEED-SCALE processes have now been tested across social and political systems for two decades. People may turn to partnerships, they may start to use evidence, and they will certainly argue over successes. But, as the case studies in this volume demonstrate, once the process starts, with one step and then another, change can spread faster than anyone expected, or planned for.

Albert Einstein's enduring observation that "the world will not evolve past its current state of crisis by using the same thinking that created that crisis" points toward the framework for a new understanding of old problems—and from that, new thinking will iteratively grow. If we are humble and do not try to control the process or force the decisions, we can take real next steps and sequence them into the continuing journey. But in taking these steps, we need to remember that development is not a product, but a process; it is not a solution, but a way in which each community can create its unique pattern to achieve a more just and lasting future.

Acknowledgments

No conversation more tenaciously endures than humanity's discourse on how to go beyond survival toward a rising quality of life. Two intertwined conversations of this journey are found in the fossil record. One is brutality, with scars from past fighting. The other is a record of human progress, where we see artifacts and art on every continent and a diversifying, growing human civilization. War and social progress, across the ages when humanity lacked money. The story of this book continues the history of forward progress using the resource of energies that our forbearers employed, and in doing so we first thank them as we seek to pass on this promise to generations yet to come.

Sitting around community fires, our ancestors began discussing, with humanity's first words, how to advance, which is shaped by what we do. All people alive today came from our actions of yesterday. Those who built from their successes, created partnerships, used evidence, and changed their behaviors accordingly were the ones who have given us our present good life. This book simply articulates what has been the proven path; it is an assemblage of the last century of this discourse, based on the history of positive human actions. Humanity has always been developing, and this is the premise that drives us today.

The central lesson these early discussants have brought to us is that development has been and will always continue to be founded in the application of our human energies. When we focus on that which all people have as their foundation—their energies—we can continue forward together. Health, happiness, knowledge, and economic well-being all come from how we use our energies. Human energy is the commodity all people share in equal measure. Each generation has bequeathed its role in the of shaping planetary experience through its thinking and actions to the generations that follow. So we start by celebrating this foundation they give to us—*the potential for human energy remains as potent today as it has been throughout human history.*

A book's second edition, such as this one, carries on a conversation that endures from its first edition. While the core message of our former text has endured across a decade, a number of chapters in this edition are new, and every chapter is updated. This second edition, like the first, grew from a partnership of authors. At the head of the list to thank is Henry Perry, who initiated this second edition with Johns Hopkins University Press. Then come the new chapter authors: Laura Altobelli, Brenda Gourley, Shukria Hassan, Paz Magat, Besmillah Sakhizada, Jonathan Samet, Luke Taylor-Ide, and Heather Wipfli. Providing essential help in updating the chapters, new and old, were Shobha Arole, Isaac Bekalo, Cindy George, Gladys McGarey, Ruben Puentes, Mike Rechlin, and Pat Rosenfield.

The new chapters by these partners built on the strong earlier chapters of Mabelle and Raj Arole, Abhay and Rani Bang, Patricia Paredes, Robert Parker, Jac Smit, Betsy Taylor, Henry Taylor, Miriam Were, and Zeng DongLu. It is good to keep carrying forward their message, and we thank these partners who have been with us across the years.

Drafting these concepts began in 1994, when the Independent Task Force on Community Action for Social Development met first at UNICEF's offices in New York City; then, as our numbers grew, at the Rockefeller Foundation offices, also in New York City; and wrapped up at UNICEF's International Child Development Center in Florence, Italy. Particular thanks go to Jim Grant, who set these up these meetings, and Deepak Bajracharya. The meetings resulted in the first two monographs upon which this book is built: *Partnerships for Social Development: A Casebook* (Franklin, WV: Future Generations, 1995) and *Community-Based Sustainable Human Development* (New York: UNICEF, 1995). Both monographs were presented at the World Summit on Social Development in Copenhagen in 1995, through the energies of Aditi Desai especially. And the feedback that came in from around the world is gratefully acknowledged. We are grateful to each of the original task force members who were so instrumental in shaping those volumes: Mabelle Arole, Elzbieta Dec, Aditi Desai, Lucia Dube, Kul Gautam, Muriel Glasgow, Dan Kaseje, Kausar Khan, Karl-Eric and Pauline Knutsson, Bob Lawrence, Sauni ole-Ngulay, Philomena O'Dea, Margarita Pacheco, Pat Rosenfield, Gurinder Shahi, and Draisid Tontsirin.

The shaping of the SEED-SCALE process that lies at the heart of this book grew from the Evergreen House Seminars by Future Generations that ran concurrently with the above UNICEF-sponsored meetings. Par-

ticipating in these discussions with us were Chun-Wuei Su Chien, Huang Wenhuan, Li Bosheng, Bina Pradhan, Mohan Man Sainju, and Reds Wolman. Kevin Starr's help also qualifies him as a member of this group, as does the contribution of Manjunath Shankar, who joined the conversation later. From the inception of this project, Halfdan Mahler has been a constant inspiring voice of integrity in its formative process.

Throughout the years, a number of discussant colleagues have been particularly helpful. Leading this list have been our classes of students at both Johns Hopkins University's School of Public Health and the Future Generations Graduate School. Many students have read these chapters over the years, and we learned much in the class discussions that followed. Those who especially worked with SEED-SCALE in their fieldwork after their classes include Said Arwal, Abdullah Barak, Shannon Bell, Donell Bess-Bascom, Barry Bialek, Joy Bongyereiere, Sekhar Bono, Pippa Brashear, Sabina Carlson, Jaime Castillo, Aldolphus Dupley, Delbin Enfield, Christy Fong, Asres Geda, Nawang Gurung, Amanullah Hotak, Anthony Kadoma, Tjikumba Kandji, Tage Kanno, Savela Jaques, Jarka Lamacova, Ellen Lampert, Jonathan Long, Judith Mandaza, Lori Mason, Shahid Mallick, Judith Mandaza, Kim McClennan, Hamidullah Natiq, Tsering Norbu, Msafiri Ngololo, James Patterson, Anbarasi Edward Raj, Pirmohammad Paya, Mullah Azzizi, Louino Robillard, Rohan Sagar, Meike Schleiff, LeeAnn Shreve, Ajmal Shirzai, Jerry Simon, Mary Skarie, Constatine Somali, Mark Stibich, Huiling Yu, and Mavis Windsor.

In addition, we are grateful for the partnership from other discussants: Tom Acker, Omak and Audrey Apang, Jack Bryant, Bill Carmichael, Chris Cluett, Wade Davis, R. W. Francke, Nawang Gurung, Peter Ide, Dan Jantzen, Richard Jolly, Traci Hickson, Ramesh Khadka, Y. P. Kohli, Flora MacDonald, Bill McKibben, Henry Mosley, Ping Chin, Puchong, Jed Purdy, Mike Rechlin, Herbert Reid, Peykom Ringu, George Rupp, Nafis Sadik, K. D. Singh, Sohan Singh, Al Somers, Mike Stranahan, Susan Stroud, Rebecaa Vaus, Wariko Waita, Sal Werner, and Dan Wessner.

Early discussions with several people informed this book: Ernie Campbell, Bob Fleming père et fils, Clarence Gamble, Helen Gideon, John B. Grant, Sushila Nayar, Nevin Scrimshaw, and John Wyon. Key colleagues debated these topics with us through the 1960s, 1970s, and 1980s: Tim Baker, Bob Black, Chen MingZhan, Cecile DeSweemer, John Gordon, Jim Grant, John Hume, Arnfried Kielmann, Bob Lawrence, Colin McCord,

Henry Mosley, David Peters, V. Ramalingaswami, Koye Ransom-Kuti, Bill Reinke, Mathu Santhosham, Al Sommer, Ernest Stebbins, and all the members of our Narangwal team. Also challenging our thinking were Spencer Beebe, David Burleson, Bill Coperthwaite, John and Derek Craighead, Adam Curle, David Kinsey, King Seegar, Narayan Shrestha, Dan and Seija Terry, and Bekh and Rita Thapa.

Publishing a book has many beginnings. Early on, we were blessed with two talented partners. Howard Boyer urged us to create the book and gave us invaluable encouragement. Throughout the repeated drafts of the book, Ann Hawthorne, never allowed us to give less than our best, from first word, and first thought, to last. The team at Johns Hopkins University Press, starting with Jim Jordan and continuing with Greg Britton, Kathleen Capels, Robin Coleman, Isla Hamilton-Short, Julie McCarthy, Debby Bors, and Kelley Squazzo, showed themselves to be paragons of precision to the power of each word and were joys to work with—as great publishers should be!

For us, this conversation began with John and Elizabeth Taylor's going to India a full century ago. Then, for over half that century, they wove together, at the village level, a concern with values, health, and habitat. Their ideas grew within an expanding family circle—Mary, Betsy, Henry, Jennifer, Jesse, Tara, Luke, Carter, Helen, Nancy, Chris, Claire, Herb, Josh, and Cindy—all of whom are professionals in fields that this book investigates. The fact that all are also family enabled us to continue this conversation across decades and to braid together some complex issues. And, finally, a word of joy as we look forward to carrying on the discussion with Helena and others to come.

Thank you all.

Appendix A
A Handbook on SEED
Initiating Growth

Luke C. Taylor-Ide

This handbook outlines a process to initiate local growth. This growth emphasizes the resource all communities possess—*human energy*—and, by mobilizing that, accessing other resources. Almost uniformly, people desire a specific change: an improved quality of life. Change, at its core, is an energy-driven process. Is that energy happening because people are paid to act, or because they want to act? And there are many forms of the energy people have and can act with: hope, labor, creativity, cooperation, and love. These are all positive, but there are also negative energies that impede change.

Yet change can come for all people by using the energies they have, building from what is already working, as opposed to what is not. To guide this human-energy-driven change, SEED creates partnerships to foster social growth by accenting the positive. That positive growth occurs through cooperation, and evidence of collaborative success supports further cooperation. Sustainable, continued impact occurs when action is accompanied by changing attitudes and behaviors. An alternative approach is also possible, focusing on needs and what is not working, but that is not the emphasis of SEED.

Thus three essential aspects start social growth:

1. Human energy (not money) is the available resource
2. Growth is driven by principles (not power, money, or control)
3. A doable cycle of tasks (not elaborate written plans) causes growth to build on itself

Part 1: Four Principles of Growth

The four principles are the foundation for nurturing ongoing growth. They do not automatically create results, but without them, growth cannot be sustained. The four principles provide the framework for *understanding how social changes are nurtured and sustained*.

Principle #1: Build from Success

Accent the positive to mitigate the negative.

- Build from strengths, not weakness
  - Put strength in the lead
    - Use strengths to address weaknesses
    - This contrasts with needs assessments, which focus on problems
  - Build from success, which encourages positive outcomes while discouraging negative consequences
- Do not ignore problems
  - View problems in a constructive light
  - Do not attempt to fix problems at the outset
  - Solve problems through fostering localized strengths
- Clarify whose definition of "success" is to be used
  - Requires understanding local definitions in every community
  - Does not blindly follow experts or policymakers, who often have an idea that may not match local definitions
  - Becomes more effective when operating within parameters of success that all stakeholders (community, policymakers, and experts) can agree on

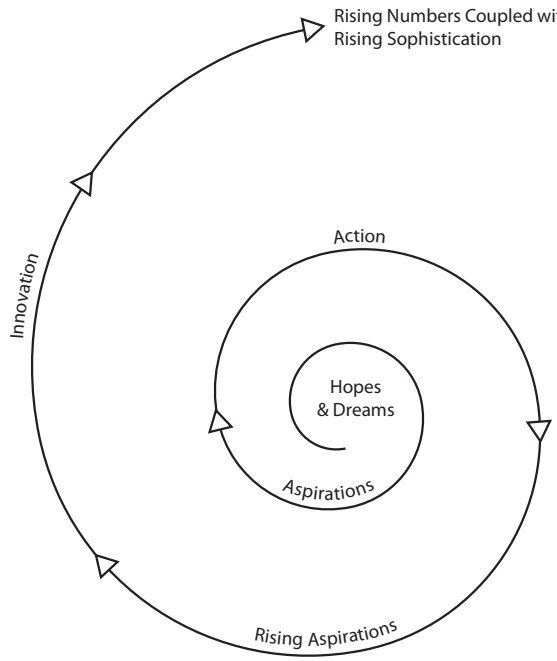

Diagram A.1. Revolution of rising aspirations

Utilize the revolution of rising aspirations, where improvements in life change what is wanted (diagram A.1).

- Achieved actions improve the quality of life for some
  - More people then want to join
  - As more people participate, the collective experience for all improves
  - Participation leads to innovation and experimentation
- Aspirations shift as one goal is reached, creating demands for further improvement
  - Accomplishments in one sector create new desires in other sectors
  - New improvements cause participation to increase further and aspirations to shift again

Principle #2: Three-Way Partnership

The roles of enabling, innovation, and action are not fixed.

- Enabling comes from the top-down; innovation is from the outside-in; and action leads from the bottom-up
- Partnerships energize social growth
  - Communities change most effectively when people are working together
  - Partnerships allocate *who* is responsible for *what* tasks
  - Participants should understand the function of each partner
- As initial tasks are addressed, partnership dynamics shift
  - Shifting dynamics mean roles are not fixed, but are always evolving
  - Partners need to be constantly matched to the roles where they have the greatest impact
  - Through first considering causal dynamics, and then identifying the functions needed, roles readjust to ensure that each function is being performed by the partner best able to do so
  - In this manner, human energies are retargeted back to the causal priorities
- Jobs are always changing—new tasks come forward; the old tasks either get completed or redefined
  - Partnership perceptions fall within three critical categories
    - Bottom-up has life improvement as its objective
    - Top-down creates the environment of policies, financing, and the values within which life grows
    - Outside-in brings innovation, education, or new ideas
  - SEED (Self Evaluation for Effective Decision-making) brings these three perceptions together
    - Understanding the functions of each partner allows effective monitoring
    - Monitoring can adjust actions and improve the process

Bottom-up is where growth happens.

- The bottom-up are the individuals who enact the growth process
  - This element is often simplified to mean community, but a more accurate description of bottom-up defines the subgroup who is actually fostering local change (very often women)
  - A misconception is that all members of a community should play equivalent roles, but the reality is that some will always work harder
- *Community* is defined as *any group that has something in common and the potential for acting together*
  - Community should not be restricted to physical boundaries, such as town limits or geographic zones
  - Community can be defined by social parameters, such as culture, language, or religion
  - Community can also be defined by profession or avocation or shared interests
- Community is created when an issue is commonly held and the potential exists for shared action
  - Communities create themselves
  - Communication technology has made place less relevant than shared interests
- Thus the bottom-up refers to the individuals whose lives are the substance of change and are therefore willing to act to effect that change

Top-down is the environment that enables the bottom-up to grow.

- The top-down shapes the environment where social growth occurs
  - This element is commonly oversimplified to mean just government officials and policymakers
  - Both groups fill the top-down function, but the top-down also includes others
    - Religious leaders
    - Business owners and landowners
    - Men—in patriarchal societies
    - Women—when organized into groups
    - Elders and respected citizens
    - Heroes and celebrities
- It refers to the dynamics of power that create policies or de facto practices that exist in every community
  - Social change can engage power dynamics by either appeasing or resisting it
  - SEED-SCALE advocates engaging power as a partner in growth

Outside-in is where forms of learning from technical and social innovation originate.

- The outside-in is educational, supplying new ideas, innovations, or contributions
  - This contribution is often interpreted as external assistance, such as funds or other help from an organization or agency, which misleads many to think that someone from outside the community is required
  - Its role can be filled (perhaps better) by a community member who has left and then returned, bringing global experience back to the community
- Value of the outside-in
  - This has little to do with *who* and everything to do with *what*
  - Who brings the innovation is not as important as having the innovation "scratch a local itch," which then releases local energy

Tasks or workplans guide partners in their roles (see page 348, the seven tasks).

Principle #3: Evidence-Based Decision-Making

Action is most effective when it is grounded in locally relevant evidence.

- Experts, policymakers, and community members tend to make decisions using opinions or irrelevent information, resulting in decisions that do not reflect local reality
  - Influenced by whoever talks most convincingly or holds power
  - Controlled by the donor
  - Based on distant situations that may not be relevant
- Absent reality-based decisions, factions polarize around opinions—leading to arguments, not collaboration
  - Evidence helps differentiate between peoples' wants versus actualities—what we *think* versus what we *know*
  - Evidence that partners can agree on creates a shared basis for action
  - Evidence guides planning
  - Monitoring is possible when an evidence base exists
  - Accurate and relevant evidence collection can start simply and increase in sophistication over time

Key indicators simplify the process (table A.1).

- Key indicators understand relationships between variables
  - In each key indicator, analysis among variables has already occurred
  - They allow researchers to skip the customary direct measurements and cross-tabulations of data collection and simply count key indicators
  - Experts should select key indicators that are reflective of each area
  - For example, midarm circumference measurements on all children under the age of three in a poor community reveals the influence of multiple social factors on nutritional status
- Key indicators are a quick and easy-to-use tool

Table A.1 Areas of community life for which key indicators can be developed

Population
Population numbers, including ages and sex distribution
Birth and death rates, and family migration
Food availability
Health status
Educational status
Housing status
Culture
Historical self-perception
Expectations for the future
Common cultural elements (music, folk stories, rituals, etc.)
Views of equity, justice, and the like
Environment
Transportation resources
Soil characteristics
Water quality and quantity
Domestic animals
Wild plants
Wild animals
Energy potential and sources
Livelihood
Types of livelihoods and occupations
Income distribution
Work opportunities
Traditional activities
Governmental and outside assistance
Administrative and political structures
Technologies being used
Farm and animal husbandry practices
Forest uses (timber and medicinal plants)
Consumption patterns
Energy use
External Factors
New cultural influences
Formal services (health, education, agriculture, fisheries, etc.)
Administrative infrastructures
Financial institutions
Food security supports
Outside businesses and industries
Institutions to promote change
Tourism

  - The customary quantitative or scholarly community surveys are beyond the abilities of typical community members
  - Data analysis of complex surveys often takes too much time to be helpful when decisions are needed
- Key indicators are able to guide actions, while also being cost effective
  - The selection of key indicators needs to be done with locally relevant expertise
  - Precision in their use increases with repeated applications

Principle #4: Behavior Change

Changes in behaviors can result in widely accessible and sustained social improvements (table A.2).

Table A.2 How SEED-SCALE differs from other development approaches

Action Achieved	SEED-SCALE approach	Traditional approach
Result	Empowerment	Dependency
Key resource	Human energy	Money
Planning mindset	Growth in nature	Engineering a building
Planning process	Workplan→budget	Budget→workplan
Who does the work	Community	Employees
Primary stakeholder	Community	Government or donor
Approach	Build on success	Fix problem / meet needs
Guided by	Evidence	Power, opinions, and habit
Major outcome	Behavior change	Measurable results
Success evaluated by	The four principles	Budget compliance
Process	Self-learning	Do it right the first time
Management mode	Mentoring	Control

- Customary program outputs are in metrics (numbers of buildings built, jobs created, patients treated)
  - These outputs are not indicative of societal change inside a system
  - Changes in behavior are a more reliable indicator of sustainable impacts
- Reasons why behavior change occurs
  - Communities *do*, as opposed to *receive*
  - Communities *plan for themselves*, in contrast with having *plans made for them*
  - Communities gain new skills and adopt them in a shared practice

- Positions of power frequently must relinquish control, so empowerment grows
  - Technical experts must shift to guidance that empowers the community to perform actions themselves—not actions done to/for the community
  - Officials must let go
    - Authority will typically seek to hold on to control
    - This aspect is hard to achieve, because officials often seek social position as well as project direction
- Members must be allowed to make mistakes
  - This process allows their abilities to grow
  - People pay attention less frequently when something is done right, but when there is a problem, collective memory endures
- A feedback loop of changing perception continually creates new expectations, and these lead to new actions
  - Social change grows along simultaneous dimensions (health, wealth, leisure, learning, and the like)
  - It becomes the driving force to expand or decrease social change
  - People join in for personal or professional reasons
  - Initiators assume the risk, in exchange for the potential for improvement
  - As outputs are known, more (or fewer) people join
    - *Positive feedback loop*—the results are good, so more people join
    - *Negative feedback loop*—an action made the quality of life go down, causing people to drop out

Part 2: The Seven Tasks of SEED

The seven tasks put the four principles that guide and sustain growth into operation. These seven tasks represent a cycle of activities to be repeated on an iterative basis. They parallel the agricultural cycle of tasks: plow, plant, irrigate, and harvest. Both cycles are universal—agriculture works when it follows these cycles, and social growth succeeds when it includes these tasks in some manner. Each task is integral to the cycle. A crop does not grow by skipping agricultural steps, and social growth is not effective unless all tasks are completed. Doing one task to perfection will not create expanded growth. As the cycle repeats, the results improve.

Unlike agriculture, no specific order exists in which the tasks must be completed. A common sequence appears below, but it can be rearranged to improve its effectiveness, and in subsequent cycles the task order will also probably fluctuate:

Figure A.1. Leadership: create (or reshape) a local coordinating committee

- If the community is especially excited by a certain task, start there
- If a certain task is slowing momentum, skip it, and return to it after other tasks are completed
- Tasks can take time to complete, so several tasks can occur simultaneously
- The most important aspect of successful implementation is repetition of the cycle

The *Leadership* Task

Create (or reshape) a local coordinating committee (LCC) (figure A.1).

- Social change is best managed by a team representing all groups—it should reflect a three-way partnership (see pages 341–48, the four principles)
- Effective leadership includes as many factions as possible
  - Leadership is a privilege earned by work
  - If leaders are not working, it helps to push those individuals to the periphery
- It is customary to look for a strong leader, but such leaders are rare, difficult to keep, too busy to be trained, almost impossible to replace, and seldom inclined to be inclusive of others
  - *Social entrepreneurs* is a term often used to identify the pioneers who start such change
  - If there is a strong leader, one responsibility of that person is to build a team confident and strong enough to take over leadership

- The most reliable way to start is by creating collective leadership
  - Form a local coordinating committee (LCC)
  - The size and composition of the LCC will differ, depending on local traditions and the stage the project is in
    - LCCs are optimal with seven members
      - ◊ Four from the community = bottom-up
      - ◊ Two officials = top-down
      - ◊ One technical expert = outside-in
    - LCCs can have more or fewer members if necessary, but bottom-up membership should never be outnumbered by top-down or outside-in members
  - Efficient functioning requires preventing the LCC from growing so large that it behaves like a congress—arguing with subgroups, and having difficulty reaching decisions
  - LCCs must be held accountable—a dysfunctional member should be replaced by a new, proactive member
- The first LCC can be self-selected
  - Membership should bring in the marginalized, especially women
  - Spinning out subcommittees who launch actions in other communities starts the process of scaling up
  - Over time, subcommittees should become autonomous
  - The resulting scaling up then becomes a nesting of one growing node inside prior, more experienced nodes

The *Understanding Your Community* Task

Gather local evidence (figure A.2).

- Community is any group with something in common and the potential to act cooperatively
  - Traditional views of community are based on geography, but boundaries do not always match administrative or political units
  - Collaborative decision-making is the objective
  - Community boundaries may need to be adjusted, so irreconcilable factions are not forced to work together
- Preparing a map is one clear way to define a community and generate enthusiasm for participation in the project
  - Maps should be as accurate as possible (so people can make decisions using them)
    - They should be in a format that can be preserved (so subsequent maps can be referenced to monitor change)
    - They should show community boundaries and subgroups

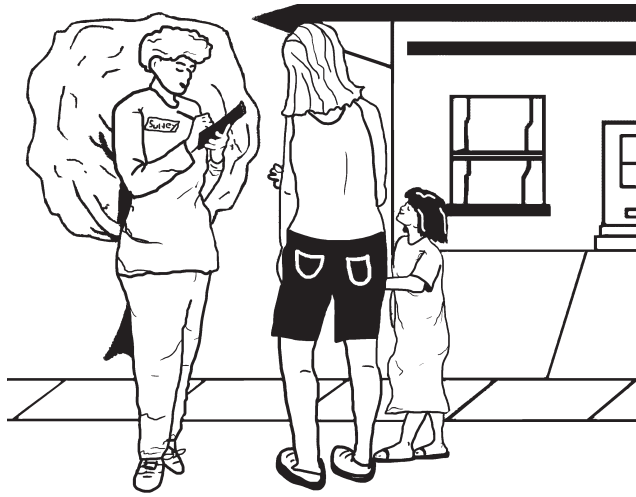

Figure A.2. Understanding your community: gather local evidence

    - Electronic tools, such as remote satellite sensing (especially Google maps) and geographic information systems (GIS), make mapping easier
- To launch community understanding, organize a participatory game, community meal, or celebration (repetitions of these, with record keeping, is an effective monitoring technique)
    - Participatory activities define a shared vision and prioritize objectives for action
        - Action will mature as people learn and practice working together
        - Rotation of leadership often reduces factionalism and jealousy
    - Activities should lead to a collaborative discussion (not self-promoting speeches by leaders)
        - Consider building physical models of what the community would like to look like in the future—these prompt more participation
        - Listen for the concerns in the community that "itch" (i.e., concerns people keep returning to)
- Involve people by breaking them up into discussion groups
    - Use participatory discussion groups to talk about future needs, but base these on relevant evidence
    - Center the discussion on action steps for community change
        - Help groups describe their vision to the larger community, in order to identify areas of priority

    - Use materials such as Lego blocks, paper, magic markers and pencils, and wooden models, which may help stimulate discussion

Once ideas are collected, simplify the options.

- Evidence collection may be limited to basic information, such as the number and distribution of households, or the community's successes as well as its problems
- Initial assessments should focus on high-priority interests with broad agreement
    - Only a few key indicators are needed in each priority area
    - Actions have difficulty going forward simultaneously—start with one action, such as health, agriculture, income generation, or forestry
    - The first round of action cannot include everyone's desires
        - Select what is most doable
        - Building momentum is more important than any specific result
- The process should be refined as local dynamics shift

The *Finding the Starting Place* Task

Identify local successes (figure A.3).

- Stories are powerful—tales bring laughter to lift burdens, and memories often make people feel strong again or give focus
    - Stories are the day-to-day ways of passing on the skills, resourcefulness, and determination needed to survive

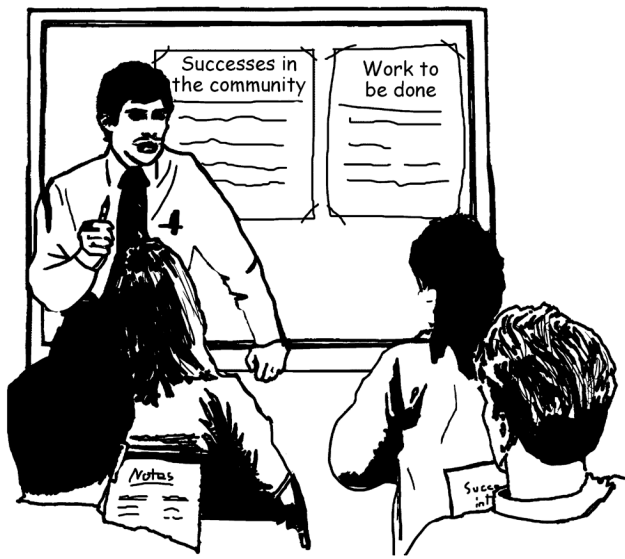

Figure A.3. Finding the starting place: identify local successes

    - Stories are capsules of a past memory line that points to what people can do in the future
    - Every community has stories that can trumpet its successes
        - A winning football team
        - A community native who has become famous
        - A natural disaster overcome by the community
    - To be effective, a story must bring the community together
- Successes are evidence to build with—the challenge is deciding which successes to select as social building blocks
    - Experts from the outside are helpful—they know what other communities are doing and may see innovations that can be transferred
    - Care must be taken to identify past successes actually done by the community, not successes brought in by outsiders
        - A frequent tendency is to ascribe a community success to a leader or a donor (often with the hope of getting something from them)
        - If a donor has paid for a building or something else in the community, that can be incorrectly seen as a community success (unless a community initiative brought the outsider's tangible contribution in)
- Community energy grows when the people are given credit
    - For energy to grow, building on itself, each community must own the process through their energies and resources
    - Successes do not happen on their own—it takes a team from inside as well as outside to fit concepts to local situations
- Adaptation is essential
    - Few blueprints will fit all situations
    - Communities must make processes their own in order to implement them
- Every momentum has points of vulnerability

The *Educational Exposure* Task

Learn from the experiences of others (figure A.4).

- Communities gain ideas from the experiences of others
    - Seeing other changes awakens options
    - Changes elsewhere present a pathway for how to achieve these possibilities
        - Go visit
        - Come back with ideas that can be adapted
- Sharing success is adaptive growth—one community learning from another
    - People adapt ideas in order to adopt them
    - Scaling up follows when this occurs adeptly
    - Modification to fit the locale is at the core of ownership
- Community adaptation leads to growth

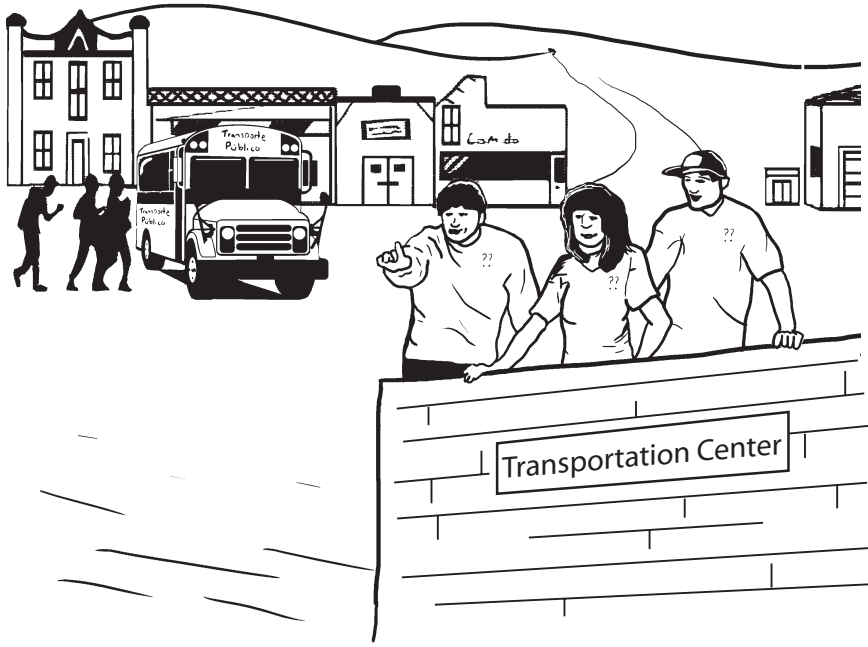

Figure A.4. Educational exposure: learn from the experiences of others

  - Promotes both local ownership and an improved product
  - Is most effective when it is hands-on, not taught theoretically
- A global scanning of successes is under way—more so every day with the growth of Internet-specific media
  - The process can be called "surveillance for success"—the continual taking of ideas and trying them out
  - The Internet, news, and trade constantly extend good ideas
  - Learning from the experiences of others formalizes reality-based learning

The *Implementing Action* Task

Develop a community workplan (figure A.5).

- Workplans specify the community's way forward
- Select at least three tasks, but no more than five
  - Keep each task simple
  - Give details as to the responsibilities to be undertaken
  - Create a specific beginning, which helps work to scale up

Figure A.5. Implementing action: a community workplan

- Action grows through a systematic process fitted to people's objectives, available resources, and a pragmatic future
- A logical framework can put this together, one that gathers the *W*s
  - Who will do what?
  - When will it happen?
  - Where will it take place?
  - What resources will be required?

Table A.3 provides a template for a workplan matrix.

- Put the workplan in a place where it informs people about what needs to be done
  - Painted on the side of a house
  - Put up as a community signboard
  - Posted to a community website
- Workplans should be simple, so community members on the go, the marginally literate, or politicians (with their limited time) can read them
  - As skill levels rise and more-complex tasks are taken on, details or subplans may be added
  - The workplan sets targets and outlines the process to achieve them
- It is helpful for the community to connect the workplan to longer-term goals, articulated in larger discussions of group priorities
  - The workplan is not the long-term plan, but it should be linked to one
  - The long-term plan is best when it lays out goals and suggested processes

Table A.3 SEED-SCALE sample workplan

Objective	What to do	Where to do it	When to start	When to finish	Who is inside	Who is outside	How to do it	Needed training	Needed supplies	Remarks
#1										
#2										
2.a										
2.b										
2.c										
#3										

    - Skill levels rise as immediate objectives are achieved, moving the community closer to its long-term plan
- Expect people to propose objectives they do not have the training or resources to accomplish
    - Intermediate plans that grow peoples' capacities need to be created
    - A workplan is not a wish list—it outlines what can be done with the resources that are available
        - Iterative growth is essential—plans evolve with practice, to reflect more and more sophistication
        - People realize results are possible as plans succeed, bringing forward the deeper goals, so always take on achievable objectives
- The aim of a workplan is to move from *discussion* to *action*, with continued application
- Monitoring the workplan is as crucial as accurate bookkeeping is in financial management
    - Assures accountability of the work performed
    - Provides evidence of progress
    - Validates advocacy (i.e., requests to governments and agencies) for outside resources

Workplans often require facilitation.

- Step 1. Create an initial workplan—even though initial plans are often vague and unrealistic
    - The workplan does not have to be perfect, but write tasks down in each box, so the whole process is articulated
    - The aim is to create momentum (i.e., a community success from collaborative action) to launch human-energy growth
    - Break the work into three separate objectives
        - Different sectors where progress is wanted (e.g., education, agriculture, and health)

    - Different activities within the same sector (e.g., in health—nutrition, hygiene, and maternal/child health)
- Step 2. After completion of the *initial workplan*, the facilitator should ask guided questions about each objective, to be sure the community is together regarding its plan
    - Help participants respond to the crucial questions
    - Avoid abstract or vague answers
    - *Red flag* responses that require further discussion or planning later on
        - If the plan is not specific about "when," give precise date ranges
        - In the "who" columns, instead of "community" "government" or "NGO," list the names of people, so responsibility is allocated
- Step 3. If the red-flagged boxes are too ambitious, the facilitator may need to set aside the initial workplan and start a simpler one, as an appendix to the initial plan—the purpose is to get a plan that is doable, one that gets forward action under way
    - This appendix is another workplan that helps put the objectives listed in the initial plan into operation
    - Each objective listed on the initial plan may need its own appendix
    - Red-flagged boxes on the initial plan become objectives in each appendix
        - For example, an initial plan may state that an NGO would be the "who" from the outside
        - Then an objective in the appendix will be "coordinate with NGO," providing details on how the coordination will occur
- Step 4. Depending on the nature of the stated initial objectives, it may be necessary to repeat this process
    - Create subappendices, if necessary, to help make the workplan more specific
    - The decision on how detailed the workplan should be depends on the judgment of the facilitator and the participants

Workplans must evolve step by step, until they are completely doable, without overlooking any necessary resources:

- Workplans dependent on external parties or resources typically fail, creating disempowerment
- Workplans inform communities about their abilities and capacities
- Workplans provide a self-emerging record of community successes, which are needed for monitoring

The *Act According to the Workplan* Task

Implement the partners' agreed-to roles (figure A.6).

- Mobilizing action around the workplan does three things
    - Accomplishes the identified priorities

Figure A.6. Acting according to the workplan: partners implement their assigned roles

  - Reshapes the community toward being forward-looking
  - Empowers people through the achievement of objectives
- The leadership committee is called "coordinating," not "controlling"
  - *Coordination* engages people, rather than directing them, and engenders cooperation
  - *Control* in a complex system is impossible—external and internal parties will attempt to have control, but empowered community action comes from creating a balance among partners who share control
- The objective is to grow *local ownership*
  - Ownership increases when members work together to learn how to complete their tasks
  - Increasing numbers of people are involved, which expands the creativity pool for innovations

To start, a few achievable tasks should be attempted.

- The emphasis must be on getting each cycle completed, so understanding grows and skill levels improve at the same time as the partnership strengthens
- Capacity is being grown among the working team, which is the primary objective—achieving the workplan tasks is secondary
- The roles of outsiders and policymakers should devolve as much as possible
  - These roles should go from leadership to teaching and coaching

    - The most frequent obstacle to community work (more significant than a lack of money) are professionals with too much control
- A SEED-SCALE partnership has the *community as the agent of change*

The *Holding to Empowerment* Task

Make midcourse corrections (figure A.7).

- Midcourse corrections allow learning to redirect action
    - The objective is to avoid big mistakes, and to consider small mistakes as gifts to enrich learning
    - Obstacles will emerge that no plan can prepare for
    - Little mistakes are manageable problems if momentum is moving forward and learning is taking place
    - Recognize that each particular attempt does not need to be perfect, but improvements should follow on the next try—producing positive progress
        - Creates cohesion and creativity
        - Differs from the mindset of following orders
        - Adapts in a manner that has a high probability of success
- Midcourse corrections are most effective *in the degree to which they strengthen the four principles*—meeting workplan objectives is less important

How can we expand participation?
How can we do better next time?
Our New Behaviors
What are our successes?
Can we support with evidence?

Figure A.7. Nurturing empowerment: midcourse correction to strengthen the four principles

- Planning does not need to list many details, as these get filled out in the doing—the process-driven mode is simple, guided by the four principles
  - Building from success
  - Three-way partnerships
  - Evidence-based decision-making
  - Behavior change
- As momentum builds, make corrections to the workplan according to the four principles
  - The workplan is not a fixed blueprint
  - Changes to the plan must be recorded, so they can be learned from
  - Past plans should be kept track of, creating evidence of growth, as well as pointing a way forward

Summary

The seven tasks, stated another way, are:

- *Develop leadership* (form a local coordinating committee)
- *Find a starting point and locate resources* (identify local successes)
- *Obtain a relevant education* (adapt successes from elsewhere)
- *Fit actions to your economic, environmental, and cultural situation* (conduct self-evaluations)
- *Determine the direction and the partners* (make effective decisions)
- *Coordinate people, resources, and time* (each partner implements actions)
- *Keep momentum on track* (repeat tasks, while making midcourse corrections to strengthen the four principles)

This cycle is effective for two reasons.

- Impractical levels of expectation are avoided by improving with each cycle—success comes from making things better as progress happens
- Each cycle is defined by functions, not by outcomes
  - Emphasizes the processes that need to be done
  - Evolves to local solutions fitted to the time, place, and culture

SEED is a universal process for site-specific solutions.

Appendix B

A Handbook on SCALE

Growth in Improvement and Participation

Luke C. Taylor-Ide

With change having been started through the SEED process, this handbook outlines *how* projects scale up. A number of approaches can be used for scaling up; what distinguishes SCALE is that the growth emerges from adjusting internal relationships, using external contributions in a catalytic role. Moreover, scaling up sustainably requires participation with communities, not control over their activities. SCALE describes how social growth emerges from within complex systems.

This inside-the-system mobilization, thereby changing relationships, was summarized in the original 1995 SEED-SCALE monograph: "Sustainable human development is pro-poor, pro-nature, pro-democracy, pro-women, and pro-children. . . . Experience shows that sustainable human development is achieved within a culture of partnerships. . . . Community members often need guidance from public and private officials who control resources and regulations."*

- The difference between SEED-SCALE and customary approaches for scaling up is that the latter usually drive growth by means of external resources
  - Most typically, these external resources are money and expertise
  - Other approaches miss that the core growth-engine is inherent in the community, in its vision and resources
- Put simply, the difference between traditional approaches and SEED-SCALE is the contrast of *done to* versus *done by* the community

* James Gustav Speth, as quoted in Daniel C. Taylor and Carl E. Taylor, *Community-Based Sustainable Human Development: A Proposal for Going to Scale with Self-Reliant Social Development* (New York: UNICEF, 1995), p. 9

Part 1: Dimensions of SCALE (Systems for Communities to Adapt, Learn, and Expand)

While there is a contrast between the various approaches, it is not an either/or process. SCALE represents growth led by internal dynamics that utilize *both* internal and external resources. Customary scaling up usually also seeks local participation, but the outside-in typically is in control, through the resource stream of a budget.

- Examples of *internal resources*
  - Human energies of community members
  - Assets from the community's natural environment or infrastructure
  - Local expertise
  - Financial resources within the community
  - Leadership team—a local coordinating committee, not a single leader (see appendix A, pages 349–50)
- Examples of *external resources*
  - Funding
  - Technologies
  - Professional training
  - Academic expertise
  - Government policies and regulations
  - Religious norms and structures
- Partnerships between internal and external resources should be led locally, so growth is owned by those who will be affected by it
  - Experts assist with technical introductions, education, and experiments—they do not direct the work
  - Policies and social regulation provide an enabling environment
    - Government
    - Religion
    - Culture
- Going to scale is a process—not an outcome
  - Participation leads to improved quality, causing more people to join, and continuing participation encourages services to get better
  - SCALE is more than growth in size—it is social improvement, and a better way of life draws in greater participation
  - Thus fundamental change is under way
    - Services adapt to improve the processes, typically reducing costs, but expectations rise, which increase the costs
    - Momentum is sustained through the increasing quality of its supports

SCALE One (Stimulating Community Awareness, Learning, and Energy)

SCALE One expands the scope of activities (diagram B.1).

- Increases local participation
  - Fosters growth in numbers as the amount of participants or beneficiaries rises
  - Results in changing numbers of participants once a social intervention is introduced
    - Participation *increases* when local *perception is positive*
    - Participation *decreases* when local *perception is negative*
  - Expands through communities owning the process and engaging resources they either already possess or can readily access
- Must address local needs in the scope of the activities
  - Activities that are perceived as unnecessary or redundant do not stimulate local participation
  - Activities must be relevant to the time, place, and priorities of the community
  - An agenda is set by balancing community priorities with those of outsiders and policymakers
- Is directed and validated through local evidence
  - Key indicators (see appendix A, pages 345–47)
  - Community workplan (see appendix A, pages 354–57, especially 356)
  - Five criteria (discussed in greater detail in chapter 4, pages 80–83)
- Improves effectiveness when communities adapt interventions
  - Improvement draws in more participants
  - Capacity is enhanced through participation, thus incubating change and identifying new opportunities
  - Social entrepreneurs can take the lead in adapting successes
- Emphasizes growth through empowerment (as presented in this book), but other approaches, from coercion to incentives, can also create SCALE One

Examples of SCALE One:

1. An *additive growth approach* (see chapter 3, pages 54–55)

- Grows community by community
- Allows the community to function as a *resource*, *partner*, or *target*
- Works across multiple social sectors, but within a limited geographic setting

For example, missionaries open a church. Realizing that few can read, they build a school. Once the school is complete, they add a clinic. With one community serving as a base, the missionaries move to another community and begin their school and clinical programs again. Then they move to a third community.

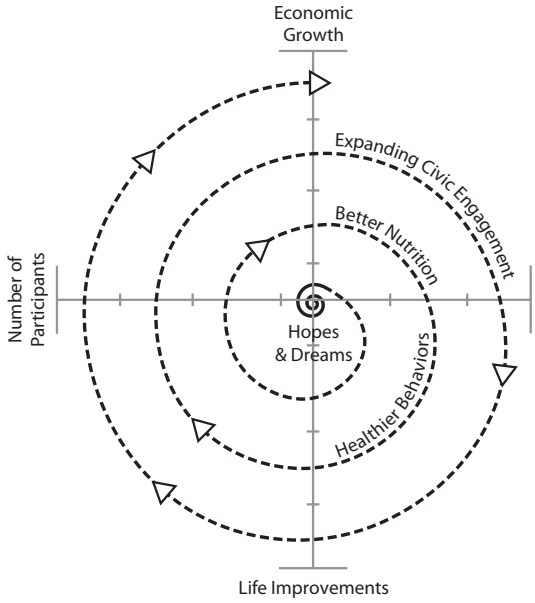

Diagram B.1. Participation and life-improvement feedback loop

This process can, in time, create SCALE One impact. It tends to be labor and resource intensive, however, as well as being dependent on outsiders.

2. In a *biological growth approach* (see chapter 3, pages 56–61)

- Successes from one community are passed on to the next
  - Adopt what can be copied
  - Adapt what needs to be contextualized
- The community functions as the primary *agent of change* (rather than being a target, a resource, or a place of change)
- Growth in one sector spawns alternate improvements, based on local priorities

For example, a group of mothers gathers to discuss their children. Initially, older mothers offer the others child-rearing tips. One week, a mother brings her sister from a neighboring community. The sister decides to organize a similar group in her home community. She discovers a retired midwife who attends her meeting and changes it from older mothers advising younger mothers to health education for all the mothers. Before long, both communities are offering health-education classes to mothers. A third community rep-

licates their success, adding action to address their growing substance-abuse problem. Then, from somewhere, although no one is quite sure how, women begin the process of pooling money and creating savings and credit-lending groups. As their confidence grows, they get behind local politicians running for office.

SCALE Squared (Self-Help Centers for Action Learning and Experimentation)

SCALE Squared describes systematic experiments and extensions of ideas to improve the quality of local life (diagram B.2).

- Three primary functions enhance social growth
  - Education through action learning—demonstrating how to implement ideas and skills
  - Replication of successes—adopting ideas, with one community copying the activities of another
  - Evolution by experimentation—after adopting an idea, *adapting* it for a new locale or to enhance efficiency
    - Copy what can be copied
    - Change aspects that need to be changed
- Optimized innovations can come through *behavior changes* or new *technologies*
- Typically, such learning or technologies come from people going to a demonstration center, seeing options, and bringing home ideas to try
  - Attributes of SCALE Squared centers
    - Make ideas visible
    - Allow learning by doing—applied action leads to *behavior change*
    - Deliver this information from within a community or a cluster of communities, not from a building
  - SCALE Squared centers demonstrate synergy between policies, experts, new practices, and community aspirations
    - Communities come to these centers to learn
    - Centers function as a network hub where other communities, experts, and authorities can exchange successes
    - Centers generate evidence to help transform SCALE One sites by improving the quality of life
- People learn new ways of doing things through various means
  - Innovation and experimentation
  - Technology and communications
  - Better utilization of existing services
- SCALE Squared is typically externally funded and provides service extensions and training

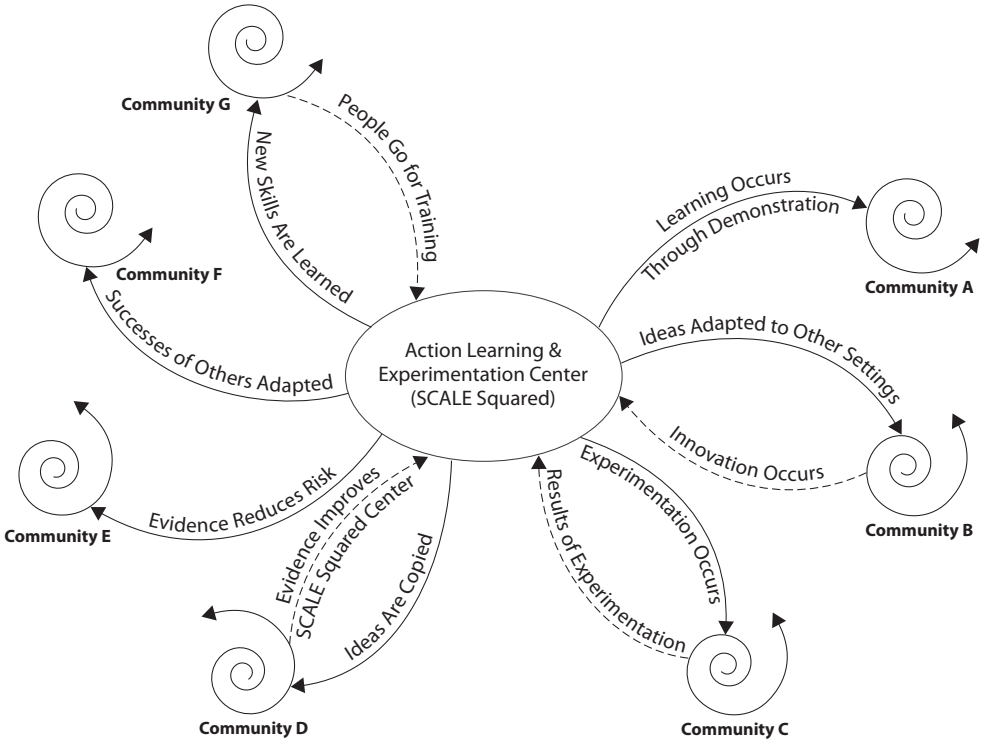

Diagram B.2. Growth driven by action and experimentation

- External assistance is required for training
  - Too much is often expected of pioneering communities (e.g., for them to continue to lead others)
  - To keep their energies going, these communities need to address their own priorities
- Extensions of activities involve disseminating practical educational skills and deliberately encouraging experimental creativity
  - Hands-on academic types are needed to lead this
  - Extensions of learning require technical and monetary resources

Examples of SCALE Squared:

1. In a *blueprint growth approach* (see chapter 3, pages 50–52)

- A design is introduced by experts, drawing on other geographic or social contexts

- The intent is for communities to adopt the expert-created design
- The community is the *setting* for this introduced design

For example, scholars around the world assembled proven ideas and launched the United Nations Millennium Development Villages program. Specific villages were selected to become models of how development should be done. To set these up, assistance came from experts and international financing. After reaching predetermined benchmarks, these villages were considered to be demonstration centers from which surrounding villages could learn.

In a blueprint approach, communities are expected to adopt a design developed by outside experts. But such approaches typically have difficulty sustaining themselves after the experts leave and funding ends. Moreover, despite their intent, these blueprint programs seldom achieve effective replication, because they often require expertise and funding assistance equivalent to that which went into the initial model village.

2. In a *biological growth approach* (see chapter 3, pages 56–61)

- Success in one sector evolves into actions initiated in other sectors
- The process is guided by community priorities
- Successes (and solutions to problems) are shared with other communities
  - Adoption concentrates on successes that can be replicated
  - Experimentation leads to improvement through adaptation
- The community is perceived as the primary *stakeholder of growth*

For example, a group of mothers meets for health training, which is facilitated by a local midwife. Mothers learn behaviors they can practice in the home to prevent, diagnose, and treat illnesses in their children. They realize their children are malnourished, so they undertake an agricultural program. They get their husbands involved, who realize the gardens not only improve the family's diet, but can also generate income by selling the excess produce. That year, a drought prevents a successful yield. So the community appeals to their leader to build an irrigation system. A local nonprofit hears about their industry and offers to build a clinic. Within five years, the nonprofit conducts a survey and shows that malnutrition and deaths from preventable disease no longer occur in that community. Other communities are now coming and learning about this change process, so the nonprofit sets up a SCALE Squared center in the pioneering community, using that community's experience as a training site.

SCALE Cubed (Synthesis of Collaboration, Adaptive Learning, and Extension)

SCALE Cubed is a network of support that expands to create an enabling environment for social change (diagram B.3).

- SCALE Cubed describes growth across a system or a network of communities
  - Functional relationships from one community to the next create collaborative dialogue
    - Successes are shared
    - Adaptation occurs
    - Improvements return to the first community, based on the experimentation of others
  - Driven by societal changes, the majority of communities in a region join in
- Collaboration often expands at a faster rate than can be controlled by vertical policies or outside interventions
  - The role of experts is to provide objective evidence and validation
  - The role of authority is to enable growth through policy systems that support and expedite social progress
  - The role of communities is to adapt behaviors to their societal objectives
- Increasing participation and an improving quality of life engages more communities
  - Momentum restructures internal dynamics, enabling growth and adaptation
  - Growth compounds like monetary interest—one success leads to another, and the more that are created, the greater the number of successes that then feed back to spur more action across a broader area
- An enabling environment increases cooperation among members and promotes new approaches within the greater society
  - Values, policies, and financing are variables in this process
  - These cause both the quantity and quality of growth to increase
- In the Internet era, SCALE Cubed does not need to be limited by geographic region
  - A SCALE Squared center in Africa can collaborate with ones in America and Asia to create a global enabling context for SCALE Cubed
  - An aspiring mullah in Afghanistan can inform others within Islam, providing an unintended consequence of decreasing jihad by sharing and collaborating with mullahs in Africa and India
  - SCALE Cubed is commonly found within the realms of academia, through peer-review, and can now be transitioned into social change
- SCALE Cubed is the enabling environment within which SCALE One and SCALE Squared function
  - Systems that expand social participation = SCALE One
  - Systems that improve the quality of services = SCALE Squared
  - Systems that collaboratively link SCALE One and SCALE Squared = SCALE Cubed

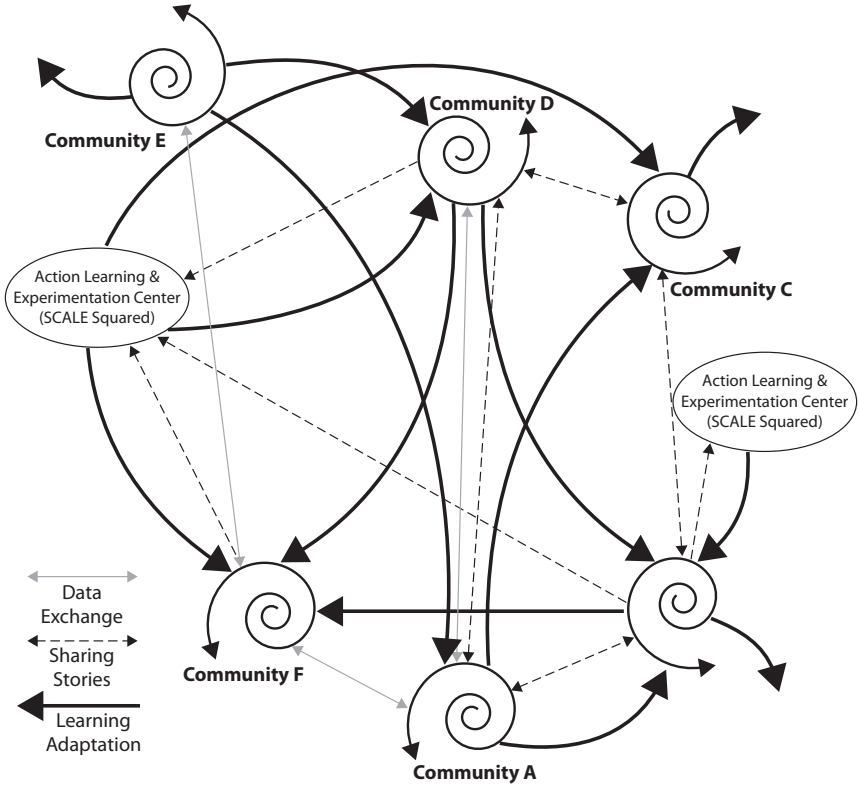

Diagram B.3. Network of action learning and experimentation

- Collaboration utilizes professionals, education, policy changes, and financial incentives, so life can improve
  - Focuses on more-effective values
  - Responds to local and global influences
  - Adjusts specific programs to enable change
  - Requires managers, politicians, and experts to facilitate collaboration

Examples of SCALE Cubed:

1. In an *explosion growth approach* (see chapter 3, pages 52–53)

- Standardized design is imposed on a region
- A technical package of services is imposed on a community
- Utilization involves a lot of activities and attention over a very short period of time
- The community is considered the *target* for change

A common application of the explosion approach is for emergency responses and crisis management. For example, in Haiti, when an earthquake destroyed systems that had been built to help the people, a surge of global assistance focused on alleviating immediate suffering. This assistance also created parallel services for parallel needs. Once the immediate suffering was controlled, however, the delivery of services could not be sustained and collaboration among services could not expand.

Another example is vaccination programs. Their purpose is to reach an entire population in a short time period. The aim is to vaccinate people, not improve the health system or raise awareness about healthy behaviors. Explosion approaches are good at administering a one-time treatment.

2. In a *biological growth approach* (see chapter 3, pages 56–61)

The biological approach is the only method applicable in all dimensions of SCALE.

- Successes that are shared throughout a region encourage adaptation
  - They promote continual fitting to a local context
  - They promote continuing improvement
- Exchanges of successes are promoted by various means
  - Feedback of local evidence
  - Education regarding new interventions
  - Further adaptations by local communities
- Authority structures enable community-to-community exchanges by supporting local action
- The community is a participatory agent—a stakeholder—in the process, much more than a target, resource, or place

Part 2: Growth from Local Evidence

Understanding impacts at the community level informs the growth processes of social change.

- Assessment methods should consider what this change impacts
  - Behaviors
  - Attitudes
  - Aspirations
  - Empowerment
- Localized assessment allows a community to direct its own change, with the following advantages
  - It monitors change across time periods (is life getting better or worse?)
  - It avoids high-scholarship methods that typically exclude the community from the process of monitoring its own progress

    - It addresses a different, community-specific scale
        - Survey methods developed to assess large populations lose precision at the community level
        - In addition, these survey methods require technical expertise
- Monitoring mechanisms need be sensitive and give a fast response, in order to provide timely, relevant local evidence
    - They may not achieve the rigor of peer-reviewed scientific data (but it is better to be roughly right rather than precisely wrong)
    - They provide concrete evidence that can ground decisions in the realities of time and place
- Communities monitor themselves through the stories they tell
    - Creation myths of their growth (up to the religious and national level)
    - Gossip (e.g., about what happened last Saturday night)
- Stories are resources
    - They contribute to a community's sense of self-identity
    - They extend through self-distribution networks
    - This already-functioning process can be made more accurate

Monitoring Using the Five Criteria

SEED-SCALE employs five criteria to monitor local growth (diagram B.4).

- Together, these function as complementary assessment methods and help track whether change is positive or problematic
- Without criteria, communities are making unsystematic and noncomparable decisions about local progress
    - Standardization among criteria allows comparisons with other communities
    - Regularization helps communities monitor their changes
    - Exact definitions for each criterion may vary, based on local values
- The five criteria provide multidimensional perspectives
    - They are relevant to the community's scenario
    - They may be powerful launch pads for discussion when used in local media
    - Because they are community specific, they may not be publishable in academic journals, which tend to seek universal applications

The five criteria (there is no preferred order in which these are used)

1. *Inclusiveness* (across poverty levels, gender, ethnicity, religion)
2. *Sustainability* (of finances, the environment, values)
3. *Holism*
4. *Iteration*
5. *Interdependence*

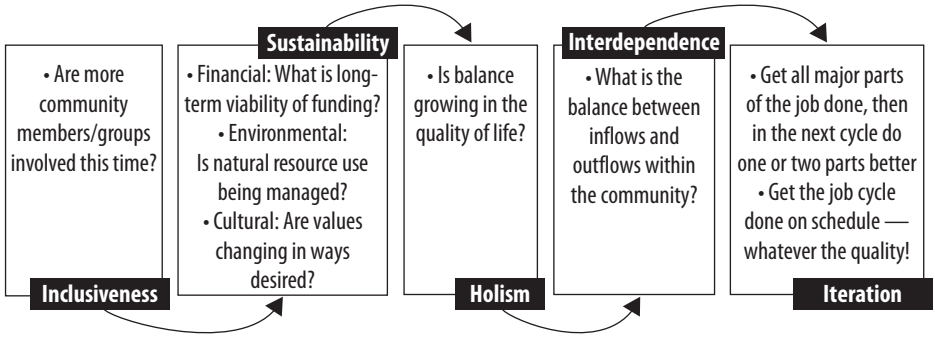
• Are more community members/groups involved this time?
Inclusiveness
Sustainability
• Financial: What is long-term viability of funding?
• Environmental: Is natural resource use being managed?
• Cultural: Are values changing in ways desired?
• Is balance growing in the quality of life?
Holism
Interdependence
• What is the balance between inflows and outflows within the community?
• Get all major parts of the job done, then in the next cycle do one or two parts better
• Get the job cycle done on schedule — whatever the quality!
Iteration

Diagram B.4. Recursive process of five criteria

Criterion 1: Inclusiveness

All have an opportunity to participate.

- Change is most effective when it is *inclusive*, not *exclusive*
  - Inclusiveness gathers the community together, so it can form its own momentum
  - Pressure is needed from the government, religion, or the media to convince elites that their futures will improve when inclusion expands, so all benefit
- Attention to all serves the interests of each individual
  - Correlates with almost all indicators of prosperity
    - Physical health
    - Mental health
    - Lack of social violence
    - Life expectancy
    - Happiness
  - Is parallel to a person who, if one organ is diseased, has the whole body at risk
- Change does not evolve independently—discrimination patterns are entrenched in society
- Change has multiples faces
  - Wealth and poverty
  - Gender and sexuality
  - Ethnicity and geographic origin
  - Religion and belief systems
- Change is difficult for communities to act on, since partners have a hard time being honest with themselves on issues of discrimination
  - Communities frequently develop complex ways of not seeing inequities in their midst or justifying it to themselves

    - Leaders often think they are speaking on behalf of a constituency, but it is really just a personal opinion
- A lack of inclusiveness will always be present to some degree, but the direction of inclusive engagement needs to be moving toward (rather than away from) all
    - When inclusiveness is perceived as improving, empowerment goes up
    - When discrimination occurs, human energy is stifled, directing actions toward anger or further separating communities
    - Inclusiveness must be assessed against local norms—international standards often make communities feel constrained
- Inclusiveness measures the degree to which the community is coming together
    - Growing cohesion enables greater empowerment
    - The challenge is deciding how to narrow the gap between those with power, property, or privilege—and those without

Examples of key indicators (including those that people typically overlook) to assess *inclusiveness*.

- Are public meetings open to all?
    - Who is allowed to speak in the meeting?
    - Are meetings at a place and time accessible to all?
- How is information about the community gathered and shared?
    - Does information collection favor a certain demographic?
    - Is information available free of charge?
- How is leadership determined?
    - Ethnicity
    - Education and language skills
    - Family
    - Class
- Correlating representation in leadership positions with their group reveals any inclusion bias
- In poor communities, child nutrition is often an accurate indicator

Key indicators to assess *gender*.

- Observations regarding family decision-making, finances, health care
- School attendance

Criterion 2: Holism

Growth occurs within multiple, complementary social sectors.

- People do not operate with a single purpose
    - They have multiple needs and changing aspirations
    - Progress made in one sector prompts aspirations to shift (e.g., a doctor is no longer important when person stops feeling sick)

- Holistic life-advancement requires parallel achievements
  - Tracking and acting in multiple aspects of life simultaneously
  - Identifying emerging gaps between actions and opportunities or aspirations
  - Prioritizing needs, based on their urgency for beneficiaries
  - Allocating resources to address local priorities
- The conventional separation of community action into sectorial programs (e.g., security, health, and education) helps in the delivery of these specialized services, but it also has compromising effects
  - Does not address societal growth across systems
  - Can weaken the social cohesion that grows from synergy between sectors
  - Usually requires external resources to continue delivering specialized services
- Holistic action generates growth across the sectors, cultivating relationships and synergies between social programs
  - One sector is not better than another, but at times attention to a sector becomes more urgent when particular need is felt there
  - Ways to find optimal entry points
    - Base the entry point on opportunities available to each community
    - Move from that starting point to other sectors
  - Success in one area increases community energy/confidence and opens opportunity in another area—and human *agency* (i.e., the capacity to take on new challenges) grows

Criterion 3: Sustainability

Growth should be balanced, to minimize the depletion of natural resources, economic dependency, and the loss of cultural heritage, but growth requires consuming some resources.

- The rate of environmental depletion should minimize the risk to habitat, as habitat allows recovery from damage and provides resilience to change
- Financial growth (with boom cycles) should not endanger long-term economic stability
- Cultures adapt to change, but values need to endure, as cultures fracture when values are lost
- Communities can sustain their growth through monitoring, which gives specifics for redirection
- Change requires regular adjustments, based on monitoring its results
- Interest groups may encourage or resist change, and accommodating their interests can include their energies in the process of change

- When monitoring advises a particular action, tradeoffs must be made between values, financing, and the environment
- A community needs to ask, "Are the gains worth the costs?"

1. *Environmental sustainability*. Nature is the physical foundation for a community—water, soil, energy, and biological diversity situate a community in its unique location.

- Environmental sustainability is commonly risked for financial growth
  - Economic growth cannot be sustained without monitoring its implications for the environment
  - A balance between the environment and economics is at the center of community values
- Environmental resources form a whole system that the community must function within
  - They are most noticed when these resources are gone
  - They are to be shared through time—providing societal security for future generations
  - Attempting to create a separate world from the natural environment sets in place a huge dependency on the resource stream supporting this separation

Examples of *environmental* key indicators.

- Forecasts about the permanence of the energy stream driving a rising livelihood
- The number of cut trees, compared with the number of newly growing saplings
- Less-fertile soil, leading to lower annual crop yields
- A depleted water table for multiple consecutive years
- The number of umbrella species, such as natural predators

2. *Cultural sustainability*. The values of a community protect people from the unfamiliar and give continuity to their social organization.

- Culture defines a sense of self and civic responsibility
  - It connects human experiences and creates commonality
    - It shows how perceptions form, to engage the world through understanding
    - It provides a framework in which to situate the implications of social change
  - It is seldom noticed until lost
  - If culture is threatened, it can lead to the rise of fundamentalisms that seek to return to an idealized (and often fictional) past
- Monitoring cultural shifts creates a community dialogue that helps protect cherished traditions without clinging to outdated customs

Examples of *cultural* key indicators.

- Balances between tradition and modernity in community festivals (or noting if such festivals no longer exist)
- Changes in music, aesthetics, food, and the practices of daily life, which manifest a sense of local identity
- Are traditions evolving, or are they being subsumed in the homogeneity of globalization?

3. *Economic sustainability.* Money has become the standardized currency for life, but will the debts of today be affordable tomorrow? Finances enable social flexibility, opening new options to improve the quality of life.

- Money provides a sense of independence, as well as security from uncertainty and disaster
- Financing leads social changes, through entrepreneurship and experimentation
- Funds allow people to import what they cannot produce

Examples of *economic* key indicators.

- Is the level of savings or debt rising?
- Is the entire community benefiting from financial growth?
- Has the distance over which a community transports its energy, building materials, and food supply increased, compared with previous generations? (Increasing distance suggests depletion of nearby supplies.)

Criterion 4: Iteration

Complete an action, learn from that, and improve on it the next time around.

- Get a job *done*, and the next time do it better
- Improve an action by repeated applications, to obtain successively better results
  - Accomplish gradual improvements, which are easier to achieve than perfection
  - Focus attention in this recurring process toward success, as opposed to failure
    - Enhance existing successes
    - Correct weaknesses in the next application
    - Always get better, but never try to be perfect
  - Focus on what is working
    - Needs assessments in traditional analyses typically emphasize what is not working (i.e., a community's weak points)
    - Attention placed primarily on problems leads to blame, not hope
- Continual adjustment of an action makes it slightly better with each attempt

    - Grow change by trying out an idea, and then making it better on the next attempt, to get improved results—do not simply repeat an action and expect transformed results
    - Adjust each trial to make it specific to time and place—improvement (not repetition) should be sought with each attempt

Example of a two-step key indicator to monitor the effectiveness of *iteration*

- Use the workplan framework from the seven tasks (see appendix A, part 2)
- Compare this year's plan with those from prior years—are tasks being accomplished, and has there been learning from prior experience?

Criterion 5: Interdependence

The goal is passing resourcefulness from one to another.

- Interdependency is a process of mutual give and take, with connections that strengthen both sides—dependency is one side restricting options for the other
    - *Interdependence*
        - Reduces the vulnerability of communities to victimization
        - Allows communities to support neighboring communities
    - Interdependent relationships
        - Mimic the functioning of a complex world
        - Work toward improved participation and strengthened relationships in a collective
- Communities learn to respond to the changing world by strengthening their relationships with other communities
    - Accurate community monitoring is needed to track if strengthening is under way
    - Interdependent communities are more resilient when faced with economic and environmental loss
    - Conflicting partner goals (such as the following) can entice communities into dependence
        - Donors that look for fast results
        - Politicians that seek reelection
        - Corporations that want economic footholds
    - Relationships that have taken communities years to evolve can quickly crumble when outside interests trump local priorities

Examples of key indicators for *interdependence*.

- Imports and exports—are they balanced?
- Ideas and innovations—are solutions being shared?
- Education—are ideas being exchanged?
- People—are the best and brightest leaving to pursue wealth or status elsewhere?
- Relationships with the environment, economics, and cultural exchanges—are they sustainable?

Table B.1 Four definitions of the acronym SCALE

	S	C	A	L	E	Action Type
Definition	Systems for	Communities	Adapt	Learn	Expand	Improvements in life and participation in action
SCALE One	Stimulating	Community	Awareness	Learning	Energy	Participation in action with local evidence of improvement
SCALE Squared	Self-help	Centers	Action	Learning	Experimentation	Improvements in life as a result of action supported by valid evidence
SCALE Cubed	Synthesis	Collaboration	Adaptive	Learning	Extension	Collaborative action network that is interdependent and resourceful

Summary: Synergy of Improving Life and Peoples' Participation

Scaling up social growth happens when the rising quality of life among one group motivates other groups to join that process. A feedback loop then starts, where both quality and quantitative participation rise.

- A new community adopts an idea, which heightens that community's energies
  - Enthusiasm is generated by the new idea
  - Enthusiasm creates innovation, and the idea is improved
- Other communities, seeing the opportunity thus created, also join in
  - They seldom just copy
  - They generally alter some facet, to improve it
    - Local resources prompt creativity, for efficient application
    - Creativity generates greater effectiveness in the results
- The overall quality of life must rise for a SCALE impact to be sustained
- As a result, community participation expands
- Growth of the bottom-up is made possible
  - Top-down services are provided in the form of enabling policies, supportive financing, and risk reduction
  - Outside-in stimulus is supplied through training, innovation, and new technologies

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Authors and Contributors

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Daniel C. Taylor is a professor and the president of Future Generations Graduate School, which teaches the processes outlined in this book. He spent three decades helping initiate and set up large nature preserves in China, Nepal, and India. Before that he created and led nonformal educational projects as president of the Mountain Institute. Until recently he was also a senior associate at Johns Hopkins University's Bloomberg School of Public Health. His awards include being knighted by the king of Nepal, receiving the first honorary professorship in quantitative ecology from the Chinese Academy of Sciences, and being awarded the Order of the Golden Arc from Prince Bernhard of The Netherlands.

Carl E. Taylor was professor emeritus at Johns Hopkins University's Bloomberg School of Public Health and was chairman of the school's Department of International Health from 1961 to 1984. From 1984 to 1987, he was the UNICEF representative in China. From 2005 to 2008, he was country director of Future Generations Afghanistan. Earlier, he held faculty positions at the Harvard School of Public Health and the Christian Medical College in Ludhiana, India. He worked in seventy countries over a period of six decades, promoting community-based primary health care, and was awarded numerous honorary professorships, doctorates, and professional accolades, including a Presidential Citation from the United States. Sadly, he died in 2009.

Contributors

Laura Altobelli is a global health practitioner now serving as Peru country director for Future Generations. Across four decades, she worked in twelve countries doing research, evaluation, and program planning to improve health through community participation in resource-poor populations. Her work in Peru was deeply involved with the community-based CLAS approach described in chapter 19. Her doctoral degree is from Johns Hopkins University's Bloomberg School of Public Health.

Mabelle and Raj Arole founded and led the Comprehensive Health and Development Project in Jamkhed, India. Trained as physicians and then in public health at Johns Hopkins University, parts of their life stories can be glimpsed in chapter 14. What is not told is the international acclaim they have received, including India's premier civil award, Padma Bhushan, as well as Asia's prestigious Ramon Magsasay Award. Sadly, Mabelle died in 1999 and Raj in 2011.

Abhay and Rani Bang founded and lead the Society for Education, Action, and Research in Community Health (SEARCH), headquartered in Gadchiroli, India. Their community-based work has made a series of conceptual breakthroughs, most recently—and with very significant global importance—in how to reduce neonatal mortality in poor, village-based situations. This has been scaled up nationally in India and eight other countries. As medical practitioners as well as scholars, they have received sixty major awards. In addition to their medical degrees, they have master's degrees from Johns Hopkins University's Bloomberg School of Public Health.

Zeng DongLu is a physician with public health training from Johns Hopkins University. She was with the Maternal and Child Health Bureau of China's Ministry of Health for many years and then became a health officer with UNICEF in Beijing. During her career she was deeply involved in the growth of the model counties project described in chapter 21.

Brenda M. Gourley is a nonexecutive director of several boards, both in the public and private sectors, ranging across the United Kingdom, Europe, the United States, and South Africa. A professor of accounting, she is the former vice-chancellor and president of the Open University in the United Kingdom, as well as the University of KwaZulu-Natal in South Africa. She has been recognized for her achievements by numerous awards from countries on four continents.

Shukria Hassan is one few women graduates from the Hazara ethnic group of Kabul University's Medical School during the Soviet occupation of Afghanistan. For three decades, she practiced extensively through a wide range of challenging positions: from rural clinics to nongovernmental agencies to the United Nations. In 2006, she led a field research project on pregnancy histories, the narrative summary of which is reported in chapter 13.

Paz Abella Magat specializes in nonprofit management, with a focus on using sports for community development. Throughout her career, she has contributed to a number of programs around the world that use sports as a vehicle for peace building, conflict resolution, gender dynamics, and leadership, particularly among youth. She is a Filipina American alumna of Future Generations Graduate School.

Patricia Paredes is a Peruvian physician with graduate training in public health from the London School of Hygiene and from Johns Hopkins University's Bloomberg School of Public Health. She was a member of Peru's Ministry of Health during the evolution of the community-based work described in chapter 19 and is now on the staff of Management Sciences for Health, based in Washington, DC.

Robert Parker has combined, across four decades, a career in academic medicine on the senior faculty of Johns Hopkins University's Bloomberg School of Public Health with extended fieldwork in India, China, Nepal, Puerto Rico, and the rural United States. His interest in China began during childhood, when he spent the first years of his life there, and he then returned for seven years to be head of the health office for UNICEF/China.

Besmillah Sakhizada, trained in computer sciences, is the administration director of Future Generations Afghanistan. Previously, he served as a researcher and data analyst for a primary health-care research project, conducted in collaboration with John Hopkins University, from 2006 to 2008. He is currently a student in the Future Generations Graduate School.

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Jac Smit was president of the Urban Agriculture Network, an organization he founded. He grew up working with poultry, dairy, fruit, and ornamental horticulture and then received academic training in agriculture and urban design. Beginning as a city planner, he became increasingly involved with urban agriculture and worked in thirty countries. He

is the author of *Urban Agriculture: Food, Jobs, and Sustainable Cities*. Sadly, Jac died in 2009.

Henry G. Taylor teaches community-based primary health care at Johns Hopkins University's Bloomberg School of Public Health and serves as deputy health officer for two counties in Maryland. Prior to that, he served as West Virginia's state health officer under three governors. During thirteen years as a rural internist, he learned that strong relationships enable individuals and communities to care for each other during crises.

Luke C. Taylor-Ide is the assistant academic director at the Future Generations Graduate School. He has worked in community-based programs among tribal populations in northeast India, with women's empowerment programs in Afghanistan, and with local entrepreneurship in West Virginia, all contexts where he both taught and used SEED-SCALE. Especially relevant to this book is his authorship of the instructional website, www.seed-scale.org.

Miriam K. Were recently retired after being in charge of population activities for the United Nations in east, central, and anglophone west Africa. Prior to this, she served as the World Health Organization's representative for Ethiopia. Earlier, she was head of the Department of Community Health at the University of Nairobi, where she helped set up the Master of Public Health degree program. For her work, described in chapter 23, she received UNICEF's Maurice Pate Leadership for Children Award.

Heather L. Wipfli is an assistant professor in the Department of Preventive Medicine at the University of Southern California's Keck School of Medicine; she is also the associate director of the Institute for Global Health at the University of Southern California. She has been engaged in global health research for fifteen years, focusing much of that time on global tobacco-control research and policy.

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